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13. ABSTRACT (Maximum 200 words)

THE PROJECT WAS THE PREPARATORY ANALYSIS FOR THE 1998 STRATEGIC PLAN FOR BROOKE ARMY MEDICAL CENTER (BAMC). GOALS OF THE PROJECT WERE TO IDENTIFY SHIFTS IN RESOURCES AND PERSONNEL OVER TIME AS BAMC USHERED IN THE PRACTICE OF MANAGED CARE.

THE PURPOSE OF THE STUDY WAS MET BY PROVIDING RELEVANT INFORMATION ABOUT THE SHIFTS IN INTERNAL OPERATIONS OVER TIME. NINE HYPOTHESES WERE ANALYZED. BAMC DID SHIFT RESOURCES FROM INPATIENT RELATED ACTIVITIES INTO AMBULATORY SETTINGS. BAMC DID INCREASE INFORMATION MANAGEMENT STAFFING. BAMC DID DEMONSTRATE GROWTH IN NURSING ADMINISTRATION. BAMC DID NOT SHOW THE EXPECTED DECLINES IN ADMISSIONS EXPECTED FROM UTILIZATION MANAGEMENT ACTIVITIES. BAMC DID NOT SHOW THE EXPECTED INCREASES IN AMBULATORY VISITS. TOTAL AMBULATORY ACCESS DECLINED AND PRODUCTIVITY PER PROVIDER AND/OR CLINIC SUPPORT STAFF DECLINED SIGNIFICANTLY. BAMC DID NOT DEMONSTRATE A REDUCTION IN ANCILLARY RESOURCES OR STAFFING AS A RESULT OF REDUCTIONS IN INPATIENT SERVICES. BAMC DID NOT DEMONSTRATE ANY COST SAVINGS AS A RESULT OF ADMINISTRATIVE BUSINESS PROCESS CHANGES IN THE LOGISTICS DIVISION. FINALLY, THE COMPARISON BETWEEN ACTUAL CONTRACT NURSING USAGE (DD-205-1 BY WORK CENTER) SHOWED A SIGNIFICANT LACK OF ACCOUNTABILITY FOR THESE PERSONNEL IN THE WMSN, THE UCAPERS, AND THE MEPRS.

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Graduate Management Project

Brooke Army Medical Center: A Strategic Plan Preparatory Analysis

Submitted to

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By

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Conditions which prompted the study

One of the persistent questions left behind upon completion of the Economic Efficiency Factor (EEF) developed by Goodman, Campbell, Millar, Cook, Jennings, Rimmer, and Evans (1998), was how Army Medical Department (AMEDD) hospital command teams could utilize the service line efficiency information to help wring cost savings out of their operations. While the model helps identify service lines which demonstrated lower cost effectiveness, it does not provide specific information on what led to the lower efficiency.

The EEF model was designed to help AMEDD leaders identify and prioritize the areas requiring the most immediate attention (i.e. service lines losing the greatest amounts or greatest percentages of dollars). The next step envisioned by the EEF authors was to use a regression model to validate the EEF and find items correlated between efficiency and facility staffing. This study was conducted on U.S. Army Dental Command (USADENCOM) Dental Activities (DENTACs) throughout the world. This resulted in a regression model with an adjusted r^2 of 0.814 indicating a relatively strong relationship between the dependent variable, a modified EEF (Goodman Factor), and the independent variables. These independent variables included data as staffing ratios of dentists to assistants, dentists to enlisted support staff, hygienists per supported population, and the percentage of dental readiness category III (Goodman, Campbell, Millar, Cook, Irwin, Rimmer, Perry, and Evans, 1999).

With the significant differences in staffing ratios between DENTACs with higher Goodman Factor (EEF scores), this author is interested in the possibility of relationships existing in the hospital environment. This study will attempt to provide a foundation for

a methodology designed to allow individual Military Treatment Facility (MTF) leaders to look deeper into their organizations for changes in staffing and efficiency. The intention is to develop a tool that will be accepted and implemented by one hospital and then modified for use throughout the AMEDD.

The medical community in the civilian sector is undergoing some significant paradigm shifts, particularly in the area of financial accountability. Mowll (1998) found that hospitals in states with the highest percentages of managed care penetration were more likely to have significantly better financial health and cash positions, but more heavily indebted than hospitals in states with the lowest managed care penetration rates. Mowll (1998) writes that he was surprised by the findings because the reimbursement rates by payors in areas of high managed care penetration were significantly lower. Perhaps the effects of greater competition and the need to control costs better led hospitals to more carefully review their internal operations.

Part of the success of hospitals competing in higher managed care markets may be related to increased financial leverage. "Higher managed care penetration is predictive of consistent revenues which in turn is more attractive to lenders" (personal communication with Dr. Mark Perry, October 1998). Additionally, the greater financial leverage allows the hospitals to invest in health programs which may not demonstrate positive results for many years, such as prevention, with loans that are paid off over a long period of time (The Healthcare Forum, 1996).

This meshes well with the findings of Kirby and Sebastian (1998), who predict that in areas of high managed care penetration, managed care organizations (MCOs) in the future will no longer gain market share through cost-cutting alone. The MCOs will need

to implement strategies which meet the public's perceptions of appropriate care, more patient involvement or choice, and satisfy them with friendly physicians and staff.

The AMEDD is clearly operating within an increasingly competitive environment. Like the civilian healthcare sector, the AMEDD must review management techniques of the past and make unified corporate decisions on the changes necessary for survival. The concept of large 'blue-chip' corporations falling on difficult, even tragic, economic conditions because of steadfast adherence to their historically "successful" strategies is not new (Christensen, 1997; Senge, 1994; Kantor, 1989).

No longer can the AMEDD leadership be lulled into inactivity by a relatively captive beneficiary population. Today, beneficiaries can sign up for the TRICARE PRIME option and use only the contract provider. In the future, they may be able to take their "dollars" and sign-up with the Federal Employee's Health Benefit Program (FEHBP), causing an increasing financial strain on the Military Health System (MHS).

It was fortuitous that the quest for further refinement of the EEF was met by a request from the Executive Officer of Brooke Army Medical Center (BAMC) to assist with the development of a strategic plan by conducting the preparatory analysis. The Commander also wanted information for a one-year plan to help transition BAMC during Fiscal Year 1999 (FY99) from status quo towards the directions made from the strategic plan. This was important because BAMC was facing the reduction of \$3.2 million dollars, which equates to a 3.4% reduction in operational spending. The BAMC Chief of Staff and Executive Officer agreed that this Graduate Management Project would be the preparatory analysis for the Strategic Plan.

Statement of the Problem

Literature suggests that strategic planning is an outstanding method for BAMC to assess how it is currently interacting with the competitive environment and how they would like to interact with the competitive environment in the future. (Christensen, 1997; Ginter, Swayne, and Duncan, 1996; Mintzberg, 1994; Bean, 1993; Sibson, 1992).

Because strategic plans help an organization move toward new opportunities, they often require money or resources. These requirements materialize in the form of personnel, supplies, equipment, construction, travel, and personnel training costs.

While strategic planning may require additional resources, this does not necessarily mean new money. In the case of the Military Health System (MHS), the funding is a combination of fixed income from Operations & Maintenance (O&M) and various reimbursement incomes. Because the reimbursements play an integral role in the overall funding of MHS hospitals, care must be taken to ensure that revenue generated by service lines within the hospital is preserved. If funding is tight, then managing toward efficiencies is an option to generate savings necessary for investment in the strategic plan.

This project will assess trends in the overall movement of resources, trends in Utilization Management (UM), the relationship between clinical productivity and staffing patterns, and assess the relationship between Administrative overhead costs and clinical productivity.

The goal of this project is to provide a useful product to the BAMC leadership team in order to help them find the necessary resources internally to finance their Strategic Plan. If the results provide value to the BAMC leadership team, perhaps some of the trends and analysis can continue to be tracked and monitored by staff elements in the future.

Areas of Focus for this Graduate Management Project

Healthcare is facing similar challenges today that the majority of Corporate America faced in the 1980s. Success results from adaptation to the rapid changes in the market place by harnessing the abilities of the employees and reduction of bureaucracy.

Change is a process that needs to be embraced and managed. Stakeholders must be identified. The mission, vision, and goals must be clearly articulated by the leadership. All employees must become vested in the need for the change process.

Good strategic planning has historically proven to be superior to tactical prowess. Yet strategic planning is failing in Corporate America. Poor analysis and an inability of leadership to implement plans are the major reasons.

This is changed through positive and visionary leadership. Resources must be moved to support the strategic plan and the business process changes. These actions will likely cause internal strife. The AMEDD leadership must overcome these fierce struggles.

Managed care is established within the Military Health System (MHS). This enables behavior and business process changes. Inpatient excess capacity has been generated and is a threat to the financial condition of the healthcare organization which does not shed unnecessary personnel. Unmanaged excess capacity will be consumed by a growing administrative bureaucracy. 'Across-the-board' staffing reductions often cause disastrous healthcare and financial results. Focused reductions based on data are recommended.

Productivity is another area that is discussed and measured in civilian managed care organizations. How does the AMEDD compare?

The data exists to review many of these questions. The issues are to know what databases are available, which data is contained in each one, and what the limitations are.

Literature Review

The Competitive World

From the most general perspective, the healthcare industry is currently facing the difficult challenges posed by the competitive nature of the free market. U.S. industry faced these challenges during the 1980's. Many corporations emerged stronger and more competitive. Others did not survive at all (Kantor, 1989).

Kantor's research leads her to conclude that the successful corporations are those which contend with the rapidly changing environment (external forces) by harnessing the entrepreneurial "human capital" of their employees. She argues for increased operational synergy, increased trust and partnership with other organizations to lower wasteful competition, reduction of bureaucracy, reduction of fixed costs – with increased use of variable expenditures, more involvement of the workforce, and increasing the use of teams with regroupings of personnel to "churn up" new solutions (Kantor, 1989).

Similarly, other research indicates that a major hurdle confronting many organizations is the constraint of past successes. This powerful psychological conditioning limits new thought and creative breakthroughs in much the same manner as captive young elephants are conditioned. Older elephants are so powerful that it is pointless to try chaining them to stakes. Therefore, young elephants are shackled with heavy chains to deeply embedded stakes. In this manner, they are conditioned at an early age to believe that no escape is possible (Belasco, 1990).

Belasco focuses on the relationship between successful corporations and their vision statements. The best vision statements are short and simple, provide something that is

value-adding, distinguish the organization with stakeholders, and provide solid decision-making criteria (Belasco, 1990).

The healthcare industry has been experiencing increasing pressure from the external environment. Autry and Thomas (1986) describe the growth of competition in the healthcare industry after full introduction of diagnosis related groups (DRGs). Literature also indicates that external pressure and competition on the healthcare industry is rising quickly because of growing concern over the increasing level of the Gross Domestic Product (GDP) consumed on healthcare in the United States (Kirby and Sebastian, 1998; Kongstvedt, 1996; and Feldstein, 1994).

This rising external pressure as well as the increasing competition from MCOs is forcing the healthcare industry to reassess many commonly held management techniques and best practices. It is encouraging to review Mowll's (1998) findings that hospitals located in areas of high managed care penetration were more financially sound and profitable, even though reimbursement rates were lower, than hospitals located in areas of low managed care penetration. Likewise, hospitals facing pressures from healthcare reform, legislation, or other market forces resulted in cost containment and improved efficiency (Hadley, Zuckerman, and Iezzoni, 1996).

The implications may be that healthcare business practices can be improved and many more inefficiencies can be wrung out of the system. Additionally, organizations that focus on the wellbeing of their beneficiary populations as well as efficiencies or cost containment will be most successful (Kirby and Sebastian, 1998).

Managing Change and Business Process Reengineering

Perhaps simplistic, yet useful, is Carnall's (1995) outline map of organizational change. First, the organizational (strategic) diagnosis of the organization is assessed through surveys of the major stakeholders, such as customers, employees, managers, and perhaps city or state officials. Next, the vision and strategy formation is developed and bench-marking against the competition is analyzed.

The four major areas regularly bench-marked were human resources, customer service, manufacturing, and information services. An area of growing bench-marking interest is management costs. If the bench-mark requires a significant change to the current organization, then a shift of resources within the company must take place.

Finally, this leads to organization-specific changes, programs such as Total Quality Management (TQM), and multi-organizational change programs. These programs could include closures, mergers, and strategic alliances (Carnall, 1995).

Effective organizations encourage and support employees learning from change. The existence of a clear set of objectives which are linked to current problems, planning that includes participation of the employees, a change process that is a sustained initiative, early training and improvement of managerial performance, and monitoring and evaluation of the changes are all common themes in organizations which embrace organization-wide (strategic) change (Carnall, 1995; Belasco, 1990; Kantor, 1989).

Carnall (1995) cites a case study on a large health district in the United Kingdom. During the period of review, a number of organizational changes were taking place. Over the top of this change was a budget that was being reduced which was seen as constraining the provision of services. Several organizational practices were taking place

that proved to be harmful and caused waste, confusion, defensiveness, and in the end, a reduction of money for services.

The treasurer would regularly present exaggeratedly high spending rates in order to get the spending units (usually those actually performing the patient care) to slow down in order to avoid overspending. This created 'slack' money for the treasurer to dole out (patronage) in order to manage the politics of the organization.

Carnall (1995) felt that the identification of inefficiency and ineffectiveness is a key responsibility for the finance department. The finance department should also be held accountable for recommending changes or solutions to departmental problems.

Michael Hammer (1990), discusses his frustration with the relatively small gains in American productivity during the 1980s despite constant downsizing, restructuring, and huge investments in automation (information technology). He states that many of the administrative functions were designed to facilitate control and efficiency before the advent of computers. With the new desire for speed, customer service, and innovation, the automation of old processes has done little to enhance cost savings or efficiency.

Hammer (1990) cites the example of Ford Motor Company's reengineering of their Accounts Payable Division. Ford executives were enthusiastic about the plan to tighten this division with a reduction of staff from 500 to 400. Then, the executives were shown the Mazda Motor Company's Accounts Payable Division of five people.

Even after adjusting for Mazda's smaller size, the Ford executives realized that their plan for a reduction to a staff of 400 would still be five times the size it could be if it operated like the smaller Mazda unit (Hammer, 1990). Hammer suggests that Mazda was able to successfully organize around outcomes and not tasks.

Strategic Planning

Abundant literature suggests that strategic planning is an outstanding method for assessing how an organization is currently interacting with the competitive environment and how the leadership would like to have the corporate entity interact with the competitive environment in the future (Christensen, 1997; Ginter, Swayne, and Duncan, 1996; Mintzberg, 1994; Bean, 1993; Sibson, 1992).

When the right long-term priorities are set and implemented by corporate leadership, this is known as strategic effectiveness. Many of the business outcomes of the 1980s were greatly influenced by the degree of strategic effectiveness corporations achieved or did not achieve (Bean, 1993). Several authors note that a significant overhaul of the strategic planning process in American corporations must take place because it has failed, largely due to a lack of implementation (Mintzberg, 1994; Bean, 1993).

Bean (1993) talks about strategic leverage and its importance to long term success. Strategic, proactive teamwork prevails over operational, reactive individualism over a long term multi-bout campaign.

T. R. Fehrenbach (1994) notes that the American military has been lauded and well-respected over the past 100 years because of its ability to successfully fight and win wars from a strategic standpoint. However, the American military has suffered many serious tactical losses because of less than stellar tactical abilities. Likewise, the tactical abilities, machine-like efficiency, and professionalism of the German armies throughout the last 100 years won repeated tactical victories. However, Germany lost every war fought during the time frame (Fehrenbach, 1994).

Using the war-time analogy, is the MHS 'fighting' the strategic campaign, meaning the overall health level of our beneficiaries, or simply tactically 'fighting' individual battles, meaning acute clinical encounters?

Bean (1993) describes how the environment has changed for the corporate world over the last 100 years. In the early 1900s technology was simple and stable, challenges were readily identifiable, and markets were local. Now, near the turn of the century, technology advances occur at an increasing tempo, challenges from competition can rise up almost instantaneously, and markets are now global in nature.

In Henry Mintzberg's 1994 book, The Rise and Fall of Strategic Planning, he writes that the research demonstrates that most strategic plans show a poor understanding of complex systems (poor analysis). His research has also led him to the conclusion that strategic planning is a failure because of the inability or unwillingness of corporate leadership to implement and resource the strategic plan. Therefore, he wonders why so many organizations even bother spending the time to develop a corporate strategic plan.

Mintzberg is not alone in his assertions about the failure of strategic planning. Christensen (1997) writes that more corporations are outsourcing the function of strategic planning because they are unhappy with the high costs and low value-added that these departments bring to the corporations. He explains that perhaps this is short-sighted. Strategic thinking at most corporations is not a valued core-competency because most are operating the business with a strategy that is working.

However, as times change with better technology, government regulation, and new competition, many corporations may be unable to recognize the need to modify corporate strategies in order to regain competitiveness (Christensen, 1997; Senge, 1994). Peter

Senge adds that during a working career, fifty percent of Americans will see their corporation disappear. Many of these corporations fail, even though evidence was available that they were in trouble.

Mintzberg (1994) describes planning as a method to design the future and methodically bring it about. He thinks that it is a process of formalization, yet is not decision making, management, or strategy making. He asks corporate executives why they plan. The most common responses revolve around coordination of functional departmental actions towards a common set of goals, ensuring the future has been accounted for, the need for organizations to act in a 'rational' manner, and the need for organizational control.

Mintzberg's (1994) research cites the Department of Defense's use of the Planning, Programming, Budgeting, and Execution System (PPBES) as an outstanding example of an organization attempting to control and act 'rationally' with disappointing results. He believes that PPBES is an utter failure because no one person (or group) has an intuitive grasp of the entire complex military organization. The military medical community has long felt itself so complex that proper analysis may not be possible.

Additionally, Mintzberg's research has led him to conclude that the actual strategy undertaken by an organization is likely to be a hybrid of intended (planned corporate) strategy and emergent (employee driven or learned) strategy. The level of corporate control will either encourage the learning organization or stifle the learning and creativity from an organization. An example of a learning organization that experienced benefits from an emergent strategy is the 3M Corporation making millions of dollars of profit from the Post-It-Notes, originally a total adhesive failure (McDaniel, 1997).

The Impact of Leadership

Mintzberg (1994) and Bean (1993) make continuous reference to the failure of strategic planning in American organizations. This is largely the result of a failure by corporate leadership to implement strategic plans even when credible strategies were crafted. Mintzberg (1994) clearly states that the capital budget should reflect the strategic plan. However, powerful functional or divisional leaders were usually deeply entrenched and failure to implement the strategic plan often occurred because of the desire by senior leadership not to 'make waves' or 'disturb the delicate balance.'

There are many parallels between corporate organizations and the MHS hospitals. Visionary and talented leadership teams with good ideas do exist. Likewise, powerful division, section, or department chiefs exist who fight against any attempt to reduce their portion of the resource allocation. The larger question may be about which leadership style, team building or authoritarian, will be more effective in enabling corporate change through movement of resources to facilitate implementation of a strategic plan?

Senge (1994) discusses how shared vision and mental models limit or expand the ways people perceive and act. Another concept, team learning, develops group skills for looking at the corporate big picture instead of petty individual perspectives. Further, he describes personal mastery and systems thinking, which help develop the learning in both individual employees as well as corporate systems. He attempts to show integration and the relationship between these major concepts and how this integration will help corporations improve their performance in the marketplace.

Envisioning the future is an important job for organizational leaders. Healthcare leaders require the same ability. As the healthcare field continues in the transition from

inpatient-based acute care toward managed (ambulatory-based and prevention-oriented) care, healthcare leaders may need to rethink about the structure of their delivery platforms in order to best provide care to their beneficiaries over the long (strategic) term.

The importance of people cannot be overstated. Senge (1994) talks about the learning organization and the integral role of the employees. Sibson (1992) states that just like strategic planning is used to help guide and improve the overall position of a corporation, strategic human resources management is important to improve the future capabilities and productivity of the employees. Additionally, diversity in the workplace is viewed as a powerful advantage (Sheerer, 1998; McDaniel, 1997; Kantor, 1989).

Rohrer and Dominguez (1998) looked at the determinants of successful community health system planning in the state of Iowa. The study findings recommend expansion of four primary services to beneficiaries; better coordination among health professionals, prevention and health promotion programs, community health nursing, and social support programs. The study also recommends the use of steering committees to help represent the consumer perspective from a marketing standpoint.

There are several potential implications for the AMEDD hospitals from this study. Are we, collectively or individually, being responsive to the needs and desires of the senior Army leadership? Are we caring for and then returning active duty soldiers to duty promptly, or are we making them wait in month(s) long queues? Are we preventing diabetic patients from showing up in the Emergency Room, due to low patient compliance, by using a proactive community health intervention program? Are we still tied to the inpatient-based acute illness intervention method of healthcare delivery because of Graduate Medical Education (GME)?

Peter Drucker (1998) writes that most of the theory being taught in management courses is now wrong or seriously out-of-date. Few policies or assumptions about the economy, business, or technology remain valid longer than 20 to 30 years. However, he concludes that business and organizational theory is over 50 years old.

He contends that seven fundamental assumptions about management are flawed. Among these flawed assumptions are; that the principles of management apply only to business organizations, that there is one single correct way to manage people, that technology, markets, and customers are fixed and rarely overlap, and that management's job is to run the business (internally focused) rather than focus on the environment.

Drucker (1998) points out that the first systematic application of management principles was when Elihu Root, the new Secretary of War, began a complete reorganization of the U.S. Army in 1901. Additionally, his research finds that most schools of management never differentiated between business and non-business techniques until the 1929 stock market crash. Soon after the start of the Great Depression, many schools of management began to splinter off into new university departments to avoid any connection with the terms "business" or "management".

One of those new fields of management was the growing discipline of hospital administration, founded by Raymond Sloan. Sloan was the younger brother of another very successful leader, Alfred Sloan from General Motors.

Despite the desire to show that governmental leadership (public administration) or hospital leadership (hospital administration) were less "capitalistic", Drucker's research has led him to believe that 90% of issues facing management were the same, regardless of the type of organization (1998, page 156). Only ten percent may be organizationally

or corporately unique. This finding is important because, the growth sectors for our economy will likely be in government, healthcare, professions, and education – not business (Drucker, 1998).

Efforts are underway in the healthcare field to educate leaders in healthcare organizations to help them succeed in this increasingly competitive environment. Ziegenfuss and Weitekamp (1996) collected information on healthcare leadership to help refocus healthcare administration education. They were able to group the findings into seven major areas for healthcare administration programs to focus upon.

However, the relevance of this information is not limited to classroom instruction. Professional organizations and corporate training programs should follow the same basic format. As the healthcare industry goes through a transformation, from unmanaged to managed care, greater pressure is being applied to wring unnecessary expenses out of the chargeable costs and increase customer satisfaction and the quality of services rendered.

Healthcare leaders must be knowledgeable about managed care in order to best place their organizations in strong strategic positions in the new environment. There is also a strong economic incentive to learn about managed care. Ziegenfuss and Weitekamp (1996) describe the difficulties experienced by large non-aligned and/or teaching hospitals dealing with MCOs because of their higher charges.

Kongstvedt (1996) cites similar findings, with teachings hospitals charging \$6,000 per admission versus \$4,400 for non-teaching institutions. This makes it much more difficult for a teaching hospital to successfully compete in a managed care environment. Kongstvedt (1996) then proceeds to discuss the complication of quality of care. Teaching hospitals are having greater difficulty showing that their quality of care is better than that

provided in non-teaching hospitals. Therefore, without the perceived quality difference, MCOs are unwilling to pay the higher amounts billed by teaching institutions.

Peter Senge's (1994) research on compensating feedback is relevant to healthcare leaders in today's tumultuous environment. When products begin to lose attractiveness in the market place, the most common mistake made by corporations is to increase marketing and advertising and to decrease the prices for those products. Often, the fundamental (root) issue is that something better is available from a competitor.

However, these common management actions cost a great deal. These actions may temporarily win back some consumers, but the costs are borne by the corporation, which compensates by reductions in the quality of its service. In the long run, the more aggressive the techniques to hold customers, the more customers they lose (Senge, 1994).

The center of modern society is the managed institution and its role in the larger environment. Management is the tool to enable organizations to produce the desired results. Drucker (1998) claims that the healthcare industry has gone the farthest into management of the entire process. The health maintenance organization (HMO) is the first attempt to manage a process (health) without actually owning much of anything.

Drucker adds that while this first attempt is the correct direction for future organizations, the HMO is "none too successful" (1998, Page 172). It demonstrates that we do not yet know how to do the job right. HMOs have focused on integration of healthcare management through costs. To be fully successful, the management of healthcare will need to be based on health care, not costs (Drucker, 1998). "In the 21st century, the first-line healthcare organizations will control cost and quality as one of its central functions" (Griffith, 1995, Page 455).

Strategic Planning in Healthcare Organizations and Implications for the MHS

Paul Feldstein (1994) wrote about health policy from an economic perspective. He based much of his research on a few over-arching assumptions. First, the amount of resources being consumed in the delivery of healthcare was too great. Congressional Budget Office estimates were \$320 billion, or 20.3% of all 1995 federal expenditures, spent on healthcare. Second, he assumed that we should focus on cost and the cost-effectiveness of healthcare programs and expenditures from a federal policy perspective. Third, he assumes that most healthcare programs for medical services funded by the government are nearing the flat of the curve. In other words, further expenditures on medical services will not likely yield better outcomes, longer and more productive lives, or lower mortality (McDaniel, 1997; Feldstein, 1994).

Despite numerous good governmental policies and market pressures during the 1980s that did result in reduction of many unwanted or unnecessary behaviors in the healthcare profession, consumer demand and overall costs rose at a frightening rate. Technology, in the form of new procedures and new equipment, and shifting demographics are the biggest drivers for increasing consumer demand (Kongstvedt, 1996; Feldstein, 1994).

Clearly, the government has not been silent on the issue of continued increases in federal healthcare spending. Legislation was enacted to reduce expenditures for patients that need skilled nursing facility (SNF) care. During the latter months of 1997, the Department of Justice began a campaign of penalty assessment letters to hospitals that had billed the Health Care Financing Activity (HCFA) "fraudulently." This kind of information is important to understand for healthcare organizations which are attempting to prepare strategic plans for the future.

Strategic management in healthcare organizations sets the direction for success. However, it is inseparable from leadership. It is leadership which creates the organizational culture that is responsive to change. The hospitals and healthcare organizations that are most likely to survive are those which can renew or reinvent themselves rapidly (Ginter, Swayne, and Duncan, 1996).

Ginter, Swayne, and Duncan (1996) call this chaotic environment hypercompetition. Alliances, price-structuring, rapid market entries and exits, and growing competition for the money paid out by fewer payors are the major components of hypercompetition.

McDaniel (1997) argues that the most successful healthcare corporations in the future will be the ones that encourage and promote increased internal complication and chaos, through such techniques as self-organizing groups and matrix organizations. Healthcare leaders need to increase the volume of information in order to see more opportunities for strategic action. Most importantly, organizations are never completed. Unlike the relative stability of the past, today's successful organizations will always remain in a state of becoming. Health care organizations must not simply be aware of their environment, McDaniel (1997) stresses that they need to change the environment.

An actual example of this new style of leadership is the actions undertaken between a rural Texas hospital, the Greater San Antonio Hospital Council, and the Texas Hospital Association (THA) in January 1998, to successfully present evidence to Congress on the abusiveness of the Department of Justice and their interpretation of the False Claims Act.

It is interesting to watch the healthcare industry begin to accept the call for chaos and creativity, that was being advocated to non-healthcare businesses during the 1980s (Kantor, 1989; Peters, 1989). This is exceptional when one considers that the healthcare

industry was largely non-competitive and tied to the cost-plus reimbursement environment prior to 1970 (Ginter, Swayne, and Duncan, 1996).

There are many implications of these changes for the MHS. The MHS has been under growing scrutiny because of perceived inefficiencies and unchecked cost growth. Braendel (1990) laid the foundation for profound changes to the MHS. His research and strategic plan for moving the MHS away from the perverse monetary reward system, known as the Medical Care Composite Units (MCCU), towards a capitation-like funding stream set in motion large-scale behavior changes in the AMEDD.

The AMEDD underwent many of the Braendel-driven changes in FY92, under a program called Gateway-to-Care. While some may never fully appreciate the inertia required for this change, the capitation-like funding stream finally allowed managed care actions, such as health promotion, prevention programs, and ambulatory-based rather than acute, episodic inpatient-based care, to take hold. The entire MHS was moved into a capitation-like budget in FY94. After overcoming initial resistance, data does suggest that inpatient admissions and average beds days per admission are down significantly. This may suggest that physician behaviors have been modified, since they alone are responsible for admissions, lengths of stay, and discharge of patients. With these utilization reductions, excess capacity has developed.

Sopariwala (1997) describes the serious threat to the long-term financial health of hospitals posed by excess capacity. Previous thinking may have led some healthcare leaders to assume that excess capacity is "bought and paid for" and is built into the fixed costs of the institution. In this competitive environment, excess capacity that is not re-utilized into revenue producing activities will increasingly place a financial drain on

those institutions. While the initial risk may seem small, insidious danger lurks behind this inaction. MCOs and other payors will likely continue to reduce reimbursements, and competitors will be working to identify excess capacity in order to lower their costs.

The research presented by Sopariwala (1997) on the dangers of excess capacity is an excellent segway to British theorist Max Gammon. Gammon (1993) conducted a historical study of the British Government's social experiment into national healthcare coverage. On 5 July 1948, all Voluntary (Private) Hospitals in Britain were nationalized. Over the course of time, criticisms began to mount against a medical system that was consuming greater amounts of governmental revenues (taxes) and was providing less care, fewer available beds, and longer waiting lists for non-urgent care.

From 1948 to 1990, available hospital beds fell from just under 490,000 to around 290,000. This represented a reduction in access-to-care of nearly 40%. At the same time, the increasing healthcare costs were largely explained by a remarkable growth in staffing per bed, 0.7 in 1948, growing to 2.9 staff per bed in 1990. Overall, this amounted to a reduction of 200,000 beds coupled with a growth of nearly 500,000 staff working in the nationalized hospitals (Gammon, 1993). Worse, during his research into the 143% growth in personnel, he found a correlation of negative 0.99 between beds occupied and growth in hospital administrative staff between 1965 and 1973.

This growth in administrative staff was largely driven by the hiring of additional nursing staff caused by a growth of nursing administration positions. As the Nursing Profession in Britain propagated the belief that Ward Sister (clinical staff nurse) was the lowest rung on the professional scale, nurses moved away from the bedside as quickly as possible in order to obtain more prestigious jobs in management or education. This

resulted in an increasing number of nurses employed and a decreasing number of nurses providing care to the patients. This discovery became known as the Theory of Bureaucratic Displacement or Gammon's Law.

The Healthcare Forum (1996) computer simulation exercise, Risky Business, is a safe way for healthcare leaders to experiment with alternative courses of action for financing and investing in healthcare programs to properly meet the needs of an aging beneficiary population. The author performed multiple experiments with the simulation which did produce several results worth stating. First, it was seemingly impossible to successfully survive financially if hospital staffing was increased. Second, failure to invest early and in increasing amounts into personnel education, information systems, and healthcare (clinical) programs always resulted in financial demise. Third, emphasizing new programs without additional hiring could be accomplished through personnel education and retraining.

This lesson relates back to the MHS. MHS leaders have stated that the reduction in dollars available for care are, in part, due to "unfunded mandates." The MHS shift towards managed care and prevention has been viewed by some as a new mission which requires new money and personnel resources.

This extremely short-sighted and uncreative management style results from a profound lack of understanding of the entire basis of literature concerning the precepts of managed care. Some MHS leaders may believe that managed care requires more resources because of their perception that it is a new program that needs to be added to the current inpatient-based and acute care-oriented status quo.

The size of the workforce is a sensitive issue. However, it is an issue that must be addressed. Gammon (1993) spoke of a massive growth in the administrative ranks of British hospitals. The fundamental issue is that without worry of competition, the bureaucracy begins to feed itself and not the original mission that it was intended to carry out (Carnall, 1995; Gammon, 1993).

Murphy and Murphy (1996) stress that caution must be exercised in conducting staff reductions. They point out that across-the-board staffing cuts achieve very limited savings and usually result in decreased clinical quality and lower patient satisfaction scores. They advocate an approach called the work process analysis. They focus on having a healthcare organization identify the types of work that add value to the overall organization. This helps cull out duplicative work and tasks which are currently being done that do little towards facilitation of the organizational mission accomplishment.

Productivity is another sensitive subject for many organizations. Kongstvedt (1996) cites studies of primary care productivity in the fee-for-service (FFS) environment. Overall, productivity was around 97 visits per week, 76 of them being in an outpatient setting. Further analysis showed that the average for individual services varied due to the complexity of the patients. For example, Internal Medicine providers averaged 93.5 per week (62 in outpatient settings), Family Practice averaged 124 per week (109.5 in outpatient settings), and Pediatrics averaged 118.6 per week (99.6 in outpatient settings).

Kongstvedt (1996) also noted that MCO physicians in those specialties average about 83% of that level of productivity. Increasingly important is the concept of customer satisfaction. Anecdotal observation indicates that patients rate female providers higher for customer satisfaction. Perhaps it is not a gender issue. Literature states that the

female physicians in primary care specialties in the FFS environment average about 85% of the productivity level of male physicians (Kongstvedt, 1996). There may be some quantity-quality trade-off for the female physician data. The patients who receive more quality time with a provider may rate them higher in terms of patient satisfaction, now considered an indication of quality. The potential implication for the AMEDD is that there may be a productivity level which best satisfies the beneficiaries.

No matter how controversial the subject of productivity is, some authors contend that the most important step may be to set standards – in writing. Preston (1997), writes that not only physicians should live with productivity standards, but most employees. Reception staff must become vested in the importance of ensuring that all scheduled patients are called the day prior to reduce the number of no-shows.

These are simple concepts that the MHS must come to grips with. In the transition from the old MCCU and funded personnel authorization budgeting of the past, senior leaders have had to relearn everything about managing money, authorizations, and the business practice. Yet, similar to Feldstein's (1994) findings, MHS leaders have had to contend with the congress, concerned with the high growth in military healthcare expenditures, and unsatisfied beneficiaries.

None-the-less, vestiges of the past remain. Senior department or division chiefs may still cling to the concept of the size of their workforce or budget as a measure of their importance. This can lead to fierce internal struggles over resource reallocations. This may still occur even though the fundamental business processes have changed. Some of these fundamental changes include Prime Vendor contracts replacing the need for

warehousing of supplies, the increasing demands for information systems, and the significant reduction in required inpatient bed capacity.

Kongstvedt (1996) and others discuss the roles of rapidly changing medical technology and the aging population as the two biggest contributors toward healthcare cost growth. The MHS is not exempt from this. With the addition of the TRICARE Senior mission, the question of applicability and pertinence must be raised. The MHS ties to Graduate Medical Education (GME) require high volume for caseload. Are the cases presented by the patients in TRICARE Senior, who are 65 years of age or more, applicable in order to adequately train military physicians for the battlefield?

Sopariwala (1997) talks about the financial dangers of failing to harvest savings from excess bed capacity. While the MHS is now facing increasing competition from the Managed Care Support Contracts (MCSC), it is still operating largely in a non-competitive environment. This suggests that "savings" from excess capacity will be consumed by a rapid growth in nursing administration as found by Gammon (1993).

Finally, accountability is a role that is taking on new importance for the Chief Operating Officer (COO) positions in many healthcare organizations according to Nilson (1998). The COO must play a more integral role in healthcare operations by asking the tough questions to help generate efficiencies from the business process changes.

The AMEDD has a Strategic Mission Statement that focuses on readiness. The AMEDD must project a healthy and protected force, deploy the medical force, and manage the health care of the soldier, their families, and the larger military alumni family (Strategic Vision, 1998). They have created goals, vision, and a philosophy to help guide subordinate organizations.

Healthcare Information Systems

The importance of Healthcare Information Systems (HIS) in the MCO cannot be overstated. More than ever, information technology is able to provide management with voluminous amounts of data. The ever increasing challenge is to ferret out the useful information from the irrelevant data.

Drucker (1998) contends that part of management's mistake of focusing inwardly, instead of on the surrounding environment, has been exacerbated by the rapid growth in information systems. This is because of the remarkable ability of information systems to exponentially increase the volume of data available to management teams.

Yet, the management dilemma remains to distill from the data meaningful information. As MCOs improve their ability to manage the health of their defined or enrolled population, they will need to rely on HIS to help them identify beneficiaries likely to be at risk (smoking, overweight, high alcohol consumption, etc.) and those whom are high consumers of care.

Feldstein (1994) briefly describes some externalities that effect the overall consumption of healthcare in the United States. Individuals who do not wear helmets while riding motorcycles increase healthcare costs in two ways. First, their injuries could have been prevented or less serious. Second, they may be uninsured and force other users to pay higher amounts. Additionally, drunk drivers, hand-gun crimes, and other violent behaviors all indirectly lead to increased consumption of healthcare (Feldstein, 1994). Perhaps the MHS could use its vast array of HIS to identify externalities as well as high risk beneficiaries and tailor intervention programs to keep them healthier and minimize costs.

A study by J. Michael McGinnis and Willian H. Foege (1993) provides evidence of the effect our behaviors have on our overall health. They concluded that tobacco usage, diet and exercise patterns, and high rates of alcohol consumption directly resulted in 38% of disease processes that caused death in 1990.

A recent study by Lantz, House, Lepkowski, Williams, Mero, and Chen (1998) presents some different findings. They reviewed the previous research over the past decades which have focused on lifestyle factors, such as cigarette smoking, as the major drivers of early onset of disease processes or death. However, their research indicates that socioeconomic status may play a very significant role in mortality and morbidity.

They found strong relationships between higher education and higher income correlating with significantly lower levels of smoking, percent of population measured as being overweight, and higher levels of physical activity. Another interesting finding was the strong relationship between higher education and income with higher levels of alcohol consumption. Lower education levels were related to lower income, lower alcohol consumption, higher probability of being overweight, higher rates of smoking, and lower levels of physical activity (Lantz, et al., 1998).

The implications of this study for the MHS are significant. The personnel in the lower pay grades and our military retirees may be at significantly greater risk of being overweight, higher likelihood of smoking, and lower levels of physical activity. Those risk factors could increase their chances of suffering from diabetes, heart disease, and several forms of cancer. The need for information combining pay grade data, health risk appraisal information, and type of military work may be useful in development of healthcare management programs.

There are several trends that have been identified by the Gartner Group (1998) that will impact the AMEDD and the MHS. First, knowledge management is in the “contagion” stage and very high, perhaps unrealistic, expectations are being set for this information leveraging tool. The Gartner Group anticipate that a period of disillusionment will take place soon, followed by implementation and productivity gains.

Second, the Gartner Group predict that retention and recruitment of information systems (IS) personnel will become very difficult. The Year 2000 (Y2K) Millennium Bug and the European currency conversion will help create a bidding war for qualified IS employees. This may lead to further confusion and disruption to internal operations.

Third, the marketplace will begin to demand externally-focused software. Cost-cutting, aided by advanced internally-focused software programs, will give way to revenue-generating software that can evaluate customer trends and changing demands Gartner Group (1998).

The findings lean towards the likelihood that the MHS hospitals will demonstrate personnel growth in the information management departments. This must be taken in the context of the Healthcare Forum (1996) computer simulation results indicating that financial failure will occur if the overall hospital staff is overgrown. In other words, the growth required by HIS departments must be “paid for” through reductions in other areas.

Several techniques are being experimented with to help decrease health care delivery costs. One concept is the use of clinical paths. Clare, Sargent, Moxley, and Forthman (1995) studied the use of five clinical paths in one hospital. They were able to benchmark Average Length of Stay (ALOS), major supply usage, and hospital charges against competitors to find a best practice.

By analyzing these diagnoses closely, they were able to identify costs as either manageable, driven by behavior or operating procedure, or unmanageable. The clinical path for one diagnosis (DRG 112, Acute Myocardial Infarction) led to a reduction in the ALOS from ten days to six days, and hospital charges per case from \$20,231 to \$11,444. The authors clearly point out that the savings are "potential" (page 57) and need to be monitored with trend analysis. While the reduction in drugs and other supplies represent actual savings, the reduction in bed days only generates a savings if those excess staffed beds are refilled with additional patients or the inpatient staff is reduced.

The MHS leadership has access to a voluminous amount of data. The Composite Health Care System (CHCS), the Medical Expense Performance Reporting System (MEPRS), the Uniform Chart of Accounts for Personnel (UCAPERS), the Corporate Executive Information System (CEIS), and the Ambulatory Data System (ADS) are just some of the current systems available to a hospital command team.

The major stumbling block has been to use the correct data from the correct HIS to be analyzed in order to provide the hospital leadership with the appropriate information. Similar to the Clare, et al., (1995) study, savings generated by a good business decision will not be realized until the personnel are removed from the payroll.

This leads to another issue for the MHS because active duty personnel cannot be fired or released due to lowering workload. However, as active duty personnel have been reduced, are they being replaced with government civil service or contract personnel? If so, are those new hire actions warranted or simply automatic reactions to replace lost numbers in order to retain the status quo for the service or department chief?

The Purpose Statement, Variables, and Hypotheses

The purpose of this project is to provide information relating to the current state of operations within BAMC relative various historical points in time. The intended utility of this technique is to help provide the BAMC leadership an analysis of hospital operations and use of resources and how they relate to the Strategic Plan. The assumptions and hypotheses will be developed based on healthcare literature.

I intend to assess trends in the overall movement of resources over time. I hypothesize the following nine trends:

1. I hypothesize that resources (both dollars and personnel) will be moved away from inpatient-related activities into ambulatory, wellness, and prevention programs. I will operationalize this by measuring the expenditures and Full Time Equivalent (FTE) data for the Inpatient activities, as found in the MEPRS A-Account and appropriate D-Account (ancillary activities like Intensive Care Units) over time. I will expect to see growth, as measured in FTE's, for Ambulatory (MEPRS B-Account) codes and applicable MEPRS codes for Community Health Nursing and Health Risk Appraisal over time.
2. I hypothesize that resource consumption for automation / information systems will grow. I will operationalize this by measuring the FTE data from MEPRS for the appropriate E-Account (administrative services - EBCA) code for information management activities over time.
3. I hypothesize that nursing personnel in administration will grow as available beds are reduced. I will operationalize this by measuring the FTE data from MEPRS for the appropriate E-Account codes for nursing administration and F-Account (non-

capitated healthcare services such as nursing education) codes over time. The available beds and ward staffing will be measured using the data from the Workload Management System for Nursing (WMSN) which is a sub-system of UCAPERS. This tracks available beds by operational wards by month. The WMSN will also provide detailed information on the acuity or level of resource intensity required per ward, per patient, per day. Finally, it will also compute a required level of nursing staff, based on the acuity, and show the reported nursing staff that was available to provide patient care.

4. I hypothesize that utilization management activities may result in an overall drop in catchment area dispositions (discharges). I will operationalize this by measuring the changes in dispositions using the CEIS to retrieve inpatient discharges from BAMC and sort the data by the patient's home catchment area.
5. I hypothesize that the transition towards managed care will result in increased ambulatory workload. I will operationalize this by measuring Outpatient Clinic Visits (OPCV) using the MEPRS over time. The data must be normalized to ensure better analysis. An example; mid-way through FY96, BAMC discontinued most obstetrical care. This would potentially skew the level of OPCV downward if normalization does not occur. I will also attempt to gain access to data from the Operating Rooms on actual ambulatory surgeries against total cases to test for changes in the business practice.
6. I hypothesize that the transition towards managed care will result in movement of personnel into ambulatory or clinic settings, increasing the productivity of the assigned staff. I will operationalize this by measuring the growth in expenditures and

FTE data by clinical service from MEPRS and compare it with changes in OPV over time.

7. I hypothesize that the workload requirements for the ancillary accounts (pharmacy, pathology, radiology, and nursing) will decline as the number of occupied beds go down. I will operationalize this by measuring the expenditures and FTE data from the MEPRS over time. I will also include any available data on ancillary service workload from MEPRS over time.
8. I hypothesize that recognized changes in the business process, such as the onset of Prime Vendor contracts, will reduce the need for staffing in the productivity enhanced area. I will operationalize this by measuring FTE data for the E-Account and the Material and Distribution Services sections of the Logistics Division over time.
9. I hypothesize that the reduction in assigned military personnel has led to replacement with government civil service or contract hires. The contract hires will be the most difficult to track within the MEPRS. Data obtained from the MEPRS Part II on contract personnel can be verified by selecting several nursing sections and going to the Resource Management Division and reviewing the DD-250 (Receiving Reports) for contract personnel actually paid for by section.

Methods and Procedures

The methodology for this project was uniquely determined for each of the objectives selected in the purpose statement. The following methods for each of the respective nine hypotheses were used:

1. I assessed trends in the overall movement of resources over time. I gathered data for this task from multiple sources. First, I reviewed the actual Operations & Maintenance (O&M) and reimbursable obligations for several consecutive fiscal years. This included obligation data for civilian pay, contract pay, CASU pay, pharmacy supplies, contractual services (such as BASOPS), and all remaining supply purchases. Second, I reviewed data from the MEPRS starting with the overall categories of Inpatient (A-Account), Out Patient (B-Account), Non-capitated Healthcare Costs (F-Account), and Readiness (G-Account). It must be stated that expenses for Ancillary (D-Account) and Administration (E-Account) are already stepped-down into the A & B Accounts. The MEPRS includes an account for dental activities (C-Account), but that was not utilized at any time during this project. Finally, I looked deeper into the MEPRS to the personnel feeder, the Uniform Chart of Accounts for Personnel System (UCAPERS). Using the UCAPERS, I gathered the available time reported by the personnel working in various sections throughout BAMC. This allowed me to determine if the movement of resources away from inpatient activities actually resulted in increases in out patient, health promotion, wellness, or prevention services.
2. This process was also used to measure the growth (in terms of FTE) in the information management sections over time

3. I measured the change in nursing personnel in administration and the changes in operational beds. This was accomplished by measuring the FTE data from MEPRS for the appropriate E-Account (EBD_) codes for nursing administration and F-Account (non-capitated healthcare services such as nursing education) codes over time. The available beds and ward staffing was measured using the data from the Workload Management System for Nursing (WMSN) which is a sub-system of UCAPERS. This tracks available beds by operational ward by month. The WMSN also provided detailed information on the acuity or level of resource intensity required per ward, per patient, per day. It also computed a required level of nursing staff, based on the acuity, and the actual nursing staff that was available to provide patient care.
4. I measured some utilization management activities by the changes in catchment area disposition data from the CEIS. The CEIS retrieved inpatient discharges from BAMC and sorted the data by the patient's home catchment area. The CEIS was used to identify where the patients came from, the services used at BAMC, the number of bed days, the category of patient, and the Case Mix Index (CMI). The hypothesis was that under the managed care concept, utilization management should help reduce the number of beneficiary admissions/discharges. It was expected that the overall number of dispositions would fall over time with corresponding growth in both CMI and bed days per disposition (sicker and more resource intensive patients). The CMI was tracked in a cumulative method over time to assess whether the decline in the number of inpatients (utilization management) actually left only the sickest (higher CMI) patients in the hospital.

5. I hypothesized that the transition towards managed care would result in increased ambulatory workload. I measured this by tracking OPCV from the MEPRS over time. I was aware that problems with the Defense Finance & Accounting System (DFAS) San Antonio delayed processing of many months of fiscal year 1998 data. This was overcome because I had access to the monthly World Wide Workload Report (WWWR) which is the hard copy feeder report into the MEPRS database. The data was normalized to ensure better analysis. Obstetrics (which was discontinued mid-way through FY96) and Therapeutic Radiology (weighted procedures prior to FY98) clinic visits were removed from the data to ensure normalization. I gained access to raw data from the Operating Room staff on actual ambulatory surgeries against total operating room cases to test for changes in the business practice. I obtained quarterly data from the Retrospective Case Mix Analysis System (RCMAS) for dispositions that exceeded their Health Care Financing Activity (HCFA) expected length of stay (LOS). This is defined as being beyond the second standard deviation for a particular Diagnosis Related Group (DRG) by Service Line. I used this data to help assess the BAMC efforts to reduce inpatient LOS with effective and proactive discharge planning and compared their performance with two other Medical Centers (Madigan Army Medical Center and Wilford Hall Medical Center).
6. I assessed trends in the relationship between clinical productivity and staffing patterns by correlating OPCV workload with UCAPERS staffing levels of physicians, direct care providers (such as physician assistants or nurse practitioners), registered nurses, para-professionals, and clerical staff. I assessed if growth in the

ambulatory sections occurred from the expected reductions in the inpatient areas.

Then I measured the changes in productivity of the ambulatory (clinic) staff.

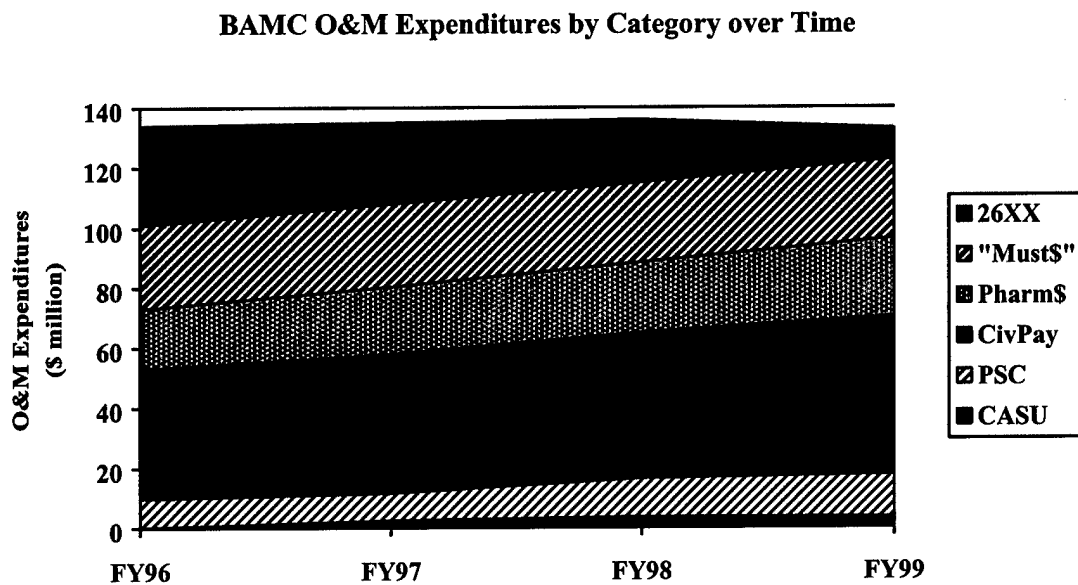
7. I assessed trends in the relationship between Ancillary (D-Account) and Administrative (E-Account) costs and weighted procedures from MEPRS with staffing patterns (UCAPERS) and the relationship with clinical productivity, as defined by Medical Weighted Units (MWU) available from the MEPRS.
8. I assessed trends in the relationship between the Prime Vendor contracts and the Logistics Division staffing. Staffing data came from the UCAPERS and the relationship with the operation of the business was defined by data obtained from the BAMC Resource Management Division.
9. I conducted an analysis of the tracking of contract personnel by reviewing seven Department of Nursing sections (ICU, Ward, and ambulatory clinic) input found in the WMSN and UCAPERS. This was compared against raw data of actual contractual payments from the applicable DD-250-1 Materiel and Receiving Reports for those same work centers.

Findings

The first hypothesis was that the organizational shift from a fee-for-service-like acute-care hospital towards a managed care organization would have an impact on staffing. After reviewing the actual Operations & Maintenance (O&M) and reimbursable obligations for four consecutive fiscal years, several trends appeared.

The data in Graph 1 suggest that the budget received by BAMC does not appear to be growing, not even for inflation. This 'budget' includes earned reimbursable income, such as medical services account (MSA) and third party collection monies. Yet civilian payroll and contract payroll at BAMC has grown from \$52.9 M. in FY96 to a projected \$70.3 M. in FY99, amounting to a 32.9% growth over three years. This growth in civilian payroll appears to have been funded by reductions in the Other Supply and TDY, "26XX", category of spending (see Table 1 in Appendix 1).

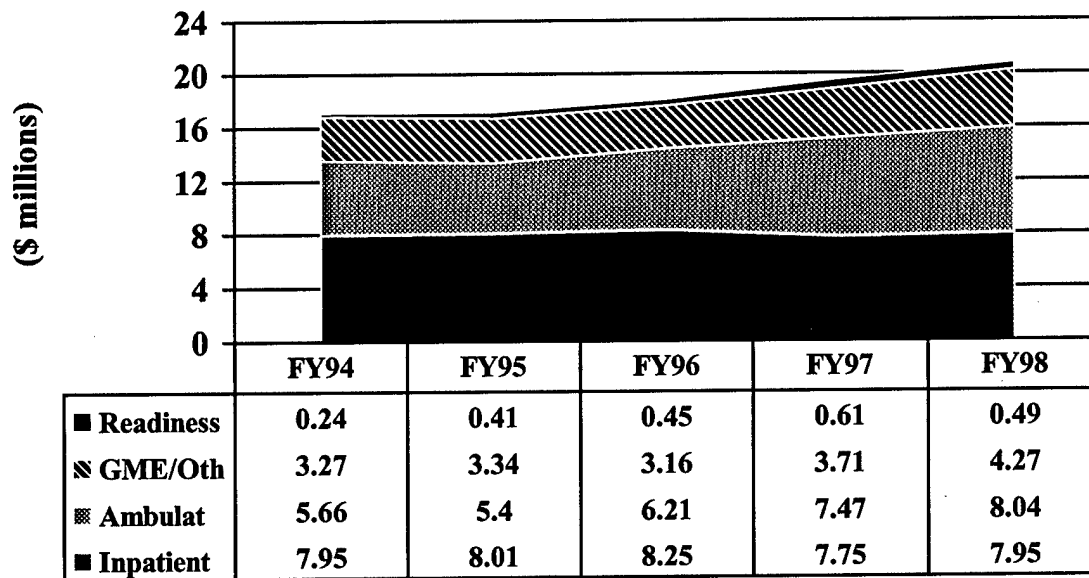
Graph 1



Additionally, expense data from the MEPRS was used to ascertain whether the leadership was facilitating the movement of resources, people and dollars, away from the acute-care inpatient orientation toward ambulatory settings. The MEPRS expenditures, which include O&M dollars as well as military pay, include the overall categories of inpatient (A-Account), outpatient (B-Account), non-capitated healthcare costs (F-Account) minus veterinary services expenses, and readiness (G-Account). Expenses for ancillary (D-Account) and administration (E-Account) are already stepped-down into the A & B Accounts. Data displayed in Graph 2 are in average monthly expenditures.

Graph 2

Average Monthly MEPRS Expenditures



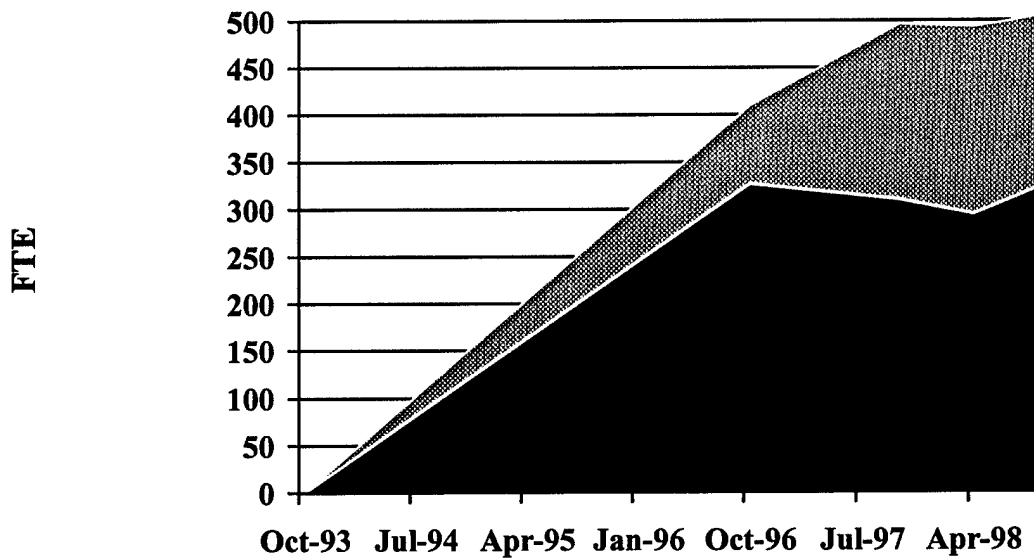
The data from Graph 2 show that BAMC reduced inpatient (A-Account) expenditures by approximately one percent, but this is in non-inflation adjusted dollars. However, the outpatient activities grew by 48.8%. Overall monthly expenditures grew by 20.5% from FY95 to FY98. Since the 20.5% cost growth cannot be explained by a growing O&M

budget (combined with reimbursable expenditures), this suggests that the growth in monthly expenditures may be related to the military personnel account.

The data from the MEPRS personnel feeder, the Uniform Chart of Accounts for Personnel System (UCAPERS), was used to measure the available time reported by the personnel working in various sections within BAMC. The hypothesis was that managed care principles would facilitate a reduction in resources from inpatient activities and an increase in outpatient, health promotion, wellness, or prevention services. Graph 3 displays the data related to FTE growth (new personnel), using October 1993 as the baseline, and additional FTE available for redistribution due to inpatient ward closures.

Graph 3

FTE's Available for BAMC Managed Care Redistribution



	Oct-93	Oct-96	Oct-97	Apr-98	Sep-98
■ A-Acct Savings	0	84	187	199	183
■ BAMC Growth	0	326	309	294	321

Placed within the context of the overall size of the BAMC staff, the data show an overall increase in staffing at BAMC of 10.4% from October 1993 (3,092 FTE) to September 1998 (3,413 FTE) (see Table 2 in Appendix 1). In support of the principles of managed care, the FTE working on A-Account activities (inpatient wards), not including the Intensive Care Unit's which are found in the D-Account, dropped by 41.2%. This results in an overall total of 504 FTE (321 new personnel working in BAMC plus the 183 that are no longer working on inpatient wards) available for redistribution by the BAMC leadership for implementing managed care. While growth did occur in health promotion, community health nursing, and immunization clinics, the total growth was about 21 FTE.

This also displays the remarkable growth in personnel at BAMC over time. In addition to the personnel growth, which includes a large growth in contract personnel, the leadership was actively working to reduce excess bed capacity. The closure of 5 wards over a 24 month period of time correlates with the reduction in FTE staffing in the A-Account. Graph 3 helps demonstrate the large pool of FTE made available for redistribution towards managed care initiatives within BAMC.

The second major hypothesis concerned the need for growth in the information management services. The methodology explained above was used to identify information management personnel from the MEPRS Part II. The code EBCA, 'Administration' was the appropriate MEPRS work center.

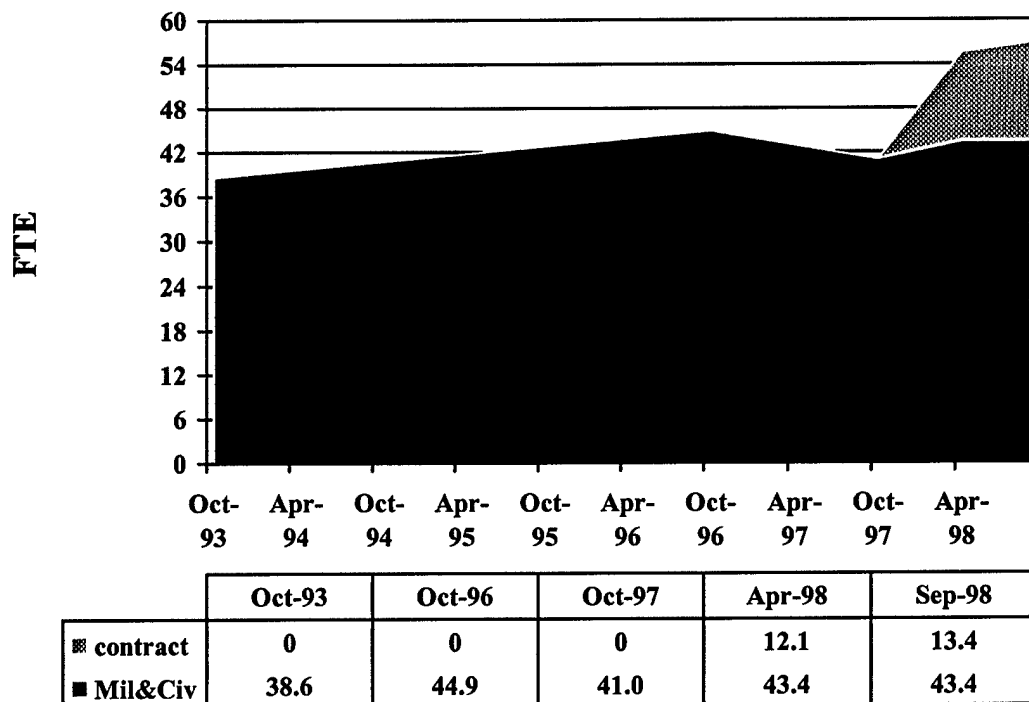
The overall change in personnel was a growth of 321 FTE from October 1993 through September 1998. The entire E-Account grew by 27 FTE during this time frame. The information management component of the E-Account appeared to grow by 18.2 FTE or 47.2% as BAMC shifted towards managed care. The growth occurred in the pool

of contract FTE within the Information Management (MEPRS code EBCA) section.

Graph 4 provides a summary of the changes in information management personnel within BAMC over time (see Table 3, Appendix 1).

Graph 4

**BAMC "Admin" (EBCA) FTE Growth in the E-Account
The Information Management Platform**

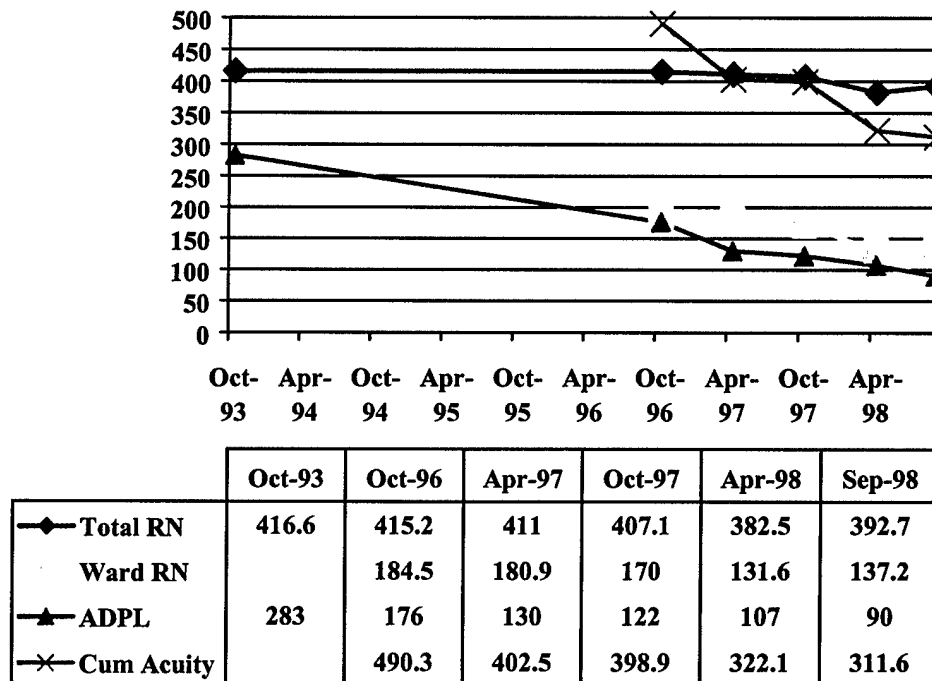


The third major hypothesis was the measurement of nursing administration personnel in administration as operational beds were reduced. I measured the change in nursing personnel in administration and the changes in operational beds. This was accomplished by measuring the FTE data from MEPRS for the appropriate E-Account (EBD_) codes for nursing administration over time. F-Account (non-capitated healthcare services such as nursing education) FTE were tracked separately. Available beds and ward staffing

were measured using data from the WMSN, which is a sub-system of UCAPERS. This data can be viewed on Graph 5 (see Table 4, Appendix 1 and Appendix 4 & 9).

Graph 5

**BAMC Changes in Nursing Requirments:
The Number of RN Remain Stable**

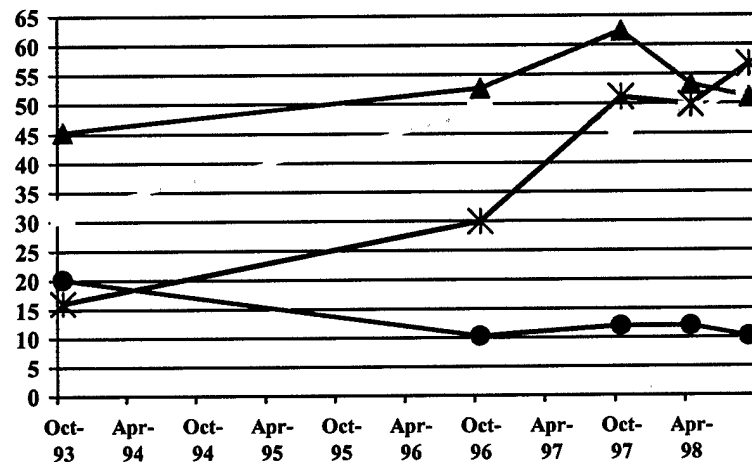


The data in Graph 5 help form a picture which is suggested in the literature. As BAMC has transitioned into a managed care organization, the requirement for a large inpatient operation has been reduced. Like civilian MCOs, BAMC closed unnecessary inpatient operations. However, as predicted by Sopariwala (1997) and Gammon (1993), the savings have not materialized. The RNs staffing inpatient wards have dropped from 184.5 FTE in October 1996 to 137.2 FTE in September 1998. Yet, the total number of RNs employed by BAMC have not been reduced by any appreciable number.

The nursing administrative growth, as predicted by Gammon (1993), was reviewed by looking at total FTE available (working) in nursing administrative work centers at BAMC from October 1993 to September 1998. These administrative FTE were then compared with average daily patient load (ADPL) and OPCV in the form of ratios. These are displayed in Graph 6.

Graph 6

**Shifts in Admin and Ambulatory RN at BAMC:
Nursing Growth Coupled With Less Productivity**



	Oct-93	Oct-96	Oct-97	Apr-98	Sep-98
Amb RN	31.7	48.2	46.9	48.1	53.1
Admin RN	45.3	52.7	62.3	53.3	51.0
Adm RN/ADPL*100	16.0	29.9	51.1	49.8	56.7
(OPCV/100)/AMB RN	20.1	10.2	11.9	11.9	10.1

These data show the total number of RNs engaged in administration have grown. Despite the large reduction in mission (inpatient census has been reduced from 283 patients per day down to 90 patients per day), RNs appear to have been removed from inpatient wards and moved into nursing administration and ambulatory nursing. The

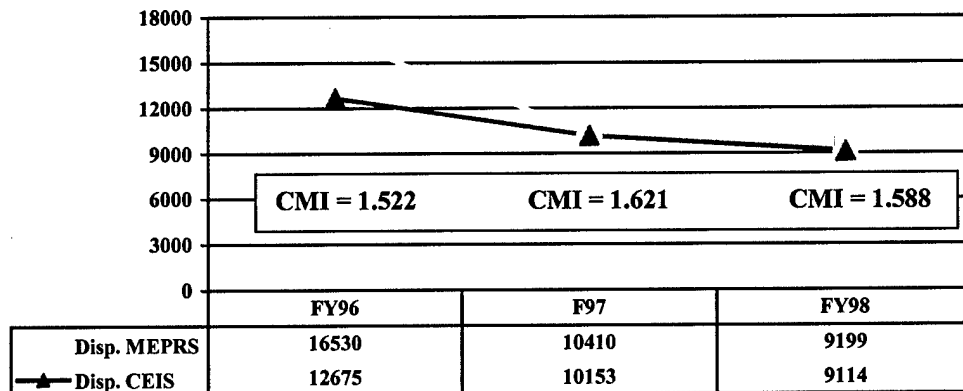
result has been that little or no money was saved from the closure of the inpatient wards. Sopariwala (1997) predicted this for hospitals not facing strong competition.

Another finding as a result of these management actions was that the 67.5% increase in RN staffing of ambulatory clinics (B-Account) is negatively correlated with reductions in outpatient clinic visits. These RN do not include Nurse Practitioners, who are found in the UCAPERS category of Direct Care Providers (DCP). Because the number of OPCV fell from 63,918 to 53,704, the increases in RNs assigned to work in ambulatory clinics resulted in a 49.8% reduction of OPCV per ambulatory RN.

The fourth hypothesis was that managed care utilization management would create a reduction in the admissions for beneficiaries in the local catchment area. The CEIS was used to measure utilization management activities by the changes in catchment area disposition data. This identified where the patients came from and their CMI. It was expected that the overall number of dispositions would fall over time with corresponding growth in both CMI and bed days per disposition (sicker and more resource intensive patients). Graph 7 displays the discrepancy between data from the MEPRS and CEIS.

**BAMC Changes in Dispositions:
The Discrepancy Between MEPRS & CEIS Narrows**

Graph 7

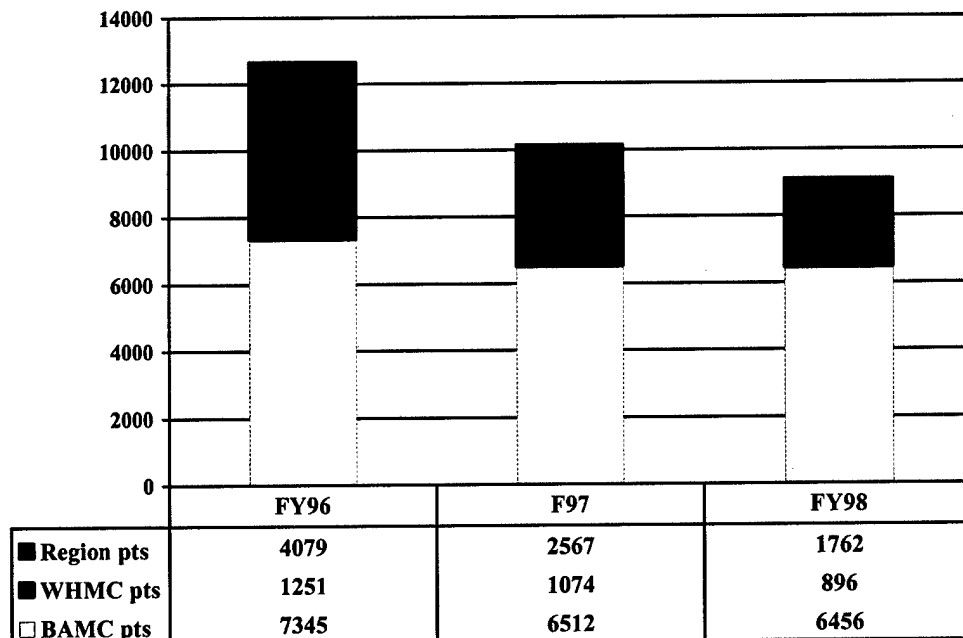


The data from Graph 7 provide some interesting trends. Clearly, the difference in disposition accountability between the MEPRS and the CEIS has improved from 76.7% in FY 1996 up to 99.1% in FY 1998. Another trend is the drop in the number of dispositions over the three-year period. This large reduction in dispositions has been explained away by some AMEDD corporate leaders as “expected” because of good utilization management. However, the hypothesized increase in the case mix index (CMI) due to reductions in the number of “less sick” patients admitted did not materialize. The reduction in the number of dispositions seems to relate to a decrease in all types of inpatient admissions.

The display in Graph 8 separates the CEIS data further into the catchment areas of the patients being referred to BAMC for care. Graph 9 displays the CMI changes.

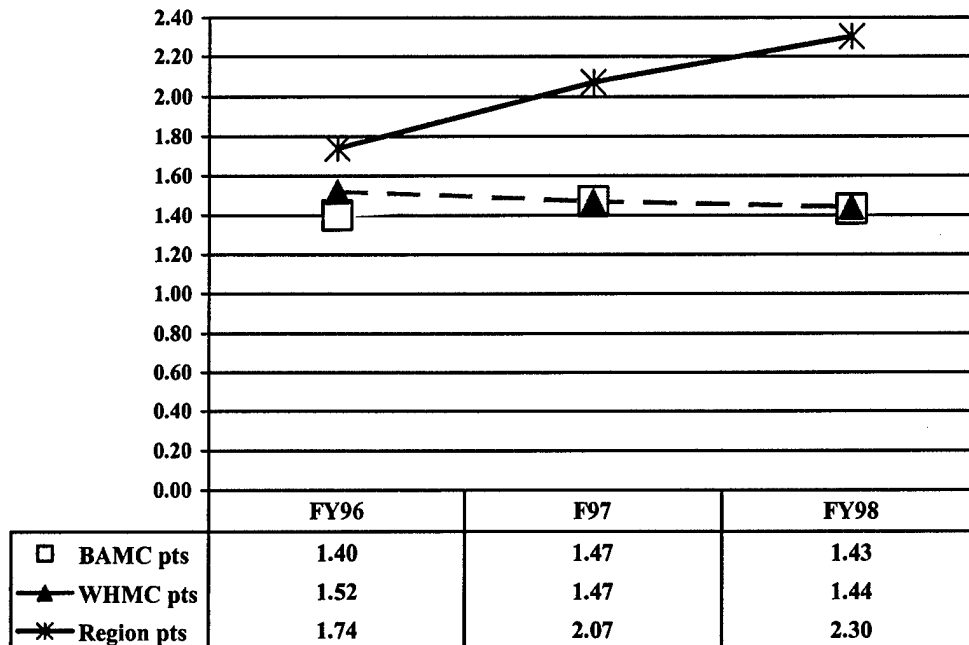
Graph 8

**BAMC Changes in Dispositions:
Catchment Area of the Patient**



Graph 9

**BAMC Changes in Case Mix Index:
Catchment Area of the Patient**

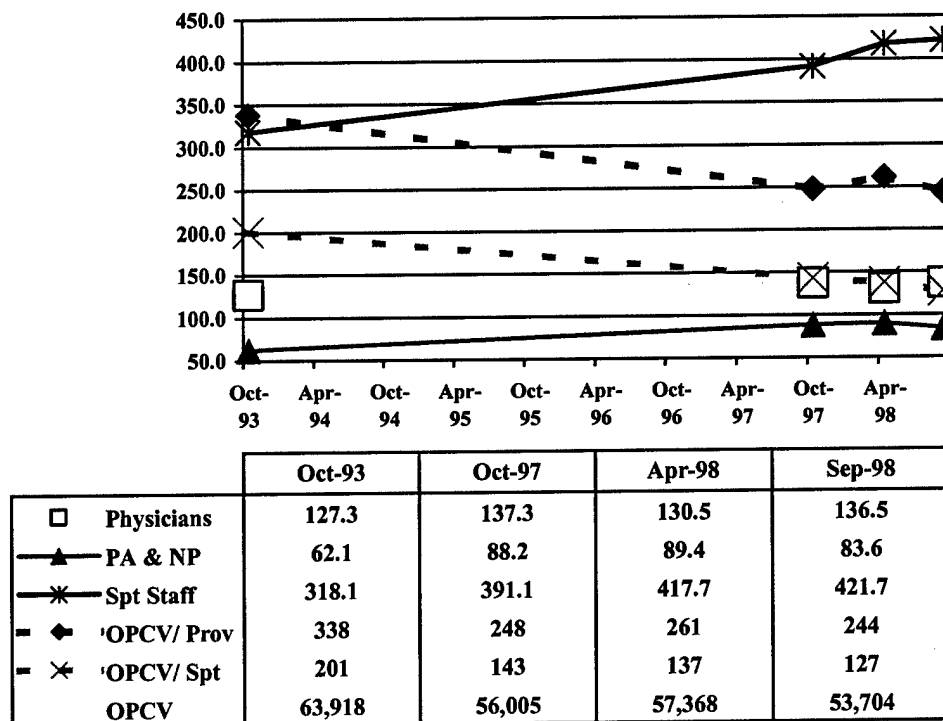


The data from the CEIS displayed on Graph 8 indicate that overall dispositions have fallen by 28.1%. The dispositions from the local (BAMC) catchment area only declined 12.1%. The data on Graph 9 show that the CMI for these local BAMC patients rose from 1.40 to 1.43. The dispositions of patients treated from Wilford Hall Medical Center's catchment area fell by 28.4% and the CMI dropped from 1.52 down to 1.44. Only the drop in the amount of care rendered to regional patients, 4,079 in FY 1996 down to 1,762 in FY 1998, correlated with a significant increase in CMI. The 56.8% reduction in care for regional patients at BAMC did correlate with a 32.2% increase in the CMI for those patients.

The next two hypotheses dealt with the transition towards managed care and the changes in ambulatory staffing and workload. I measured this by tracking FTE and OPCV from the MEPRS over time. The data was normalized to ensure better analysis. Obstetrics (discontinued mid-way through FY96) and Therapeutic Radiology (weighted procedures prior to FY98) clinic visits were removed from the data to ensure normalization. Graph 10 shows the changes in the ambulatory business practices at BAMC.

Graph 10

**BAMC Changes in Ambulatory Business Practices:
Growth in Staff Coupled With Reduced OPCV**



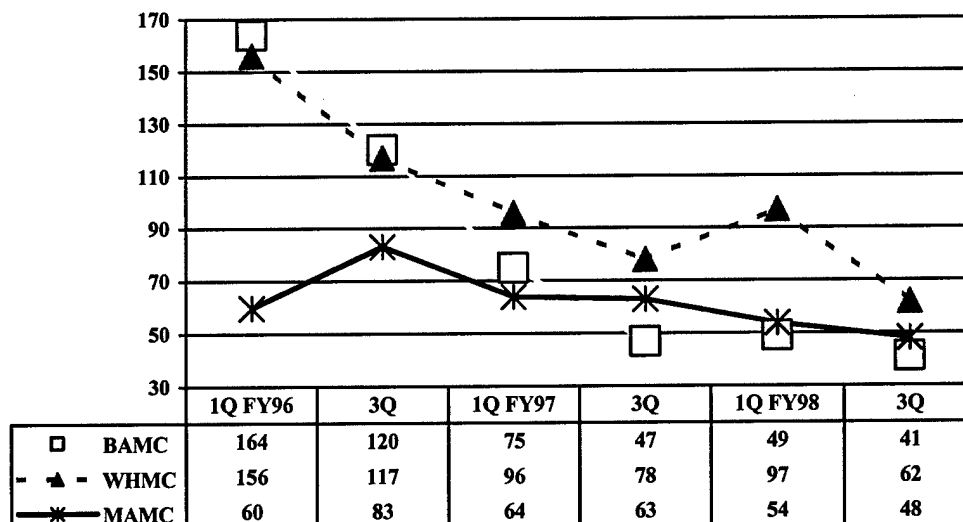
Graph 10 demonstrates that OPCV have dropped by 16% when comparing data from October 1993 through September 1998. The Pearson's r between the growth in total

clinical providers, defined as B-Account physicians and B-Account physician assistants and nurse practitioners, and the decline in OPCV seen per provider was negative 0.538. The Pearson's r between the growth in total support staffing in the clinics, defined as B-Account FTE which were not physicians, physician assistants, or nurse practitioners, and the decline in OPCV seen per support staff was negative 0.655 (see Table 6, Appendix 1).

Additionally, data were analyzed for a reduction in excess bed days. Quarterly data from the RCMAS for dispositions that exceeded their Health Care Financing Activity (HCFA) expected length of stay (LOS) by two standard deviations was obtained through Mr. Jim Jensen, Statistician, office of the Deputy Chief of Staff, Resource Management, U.S. Army Medical Command (USAMEDCOM). I used this data to help assess the BAMC efforts to reduce inpatient LOS with effective discharge planning and compared their performance with Madigan Army Medical Center and WHMC (see Table 7, Appendix 1). Graph 11 shows the comparison.

Graph 11

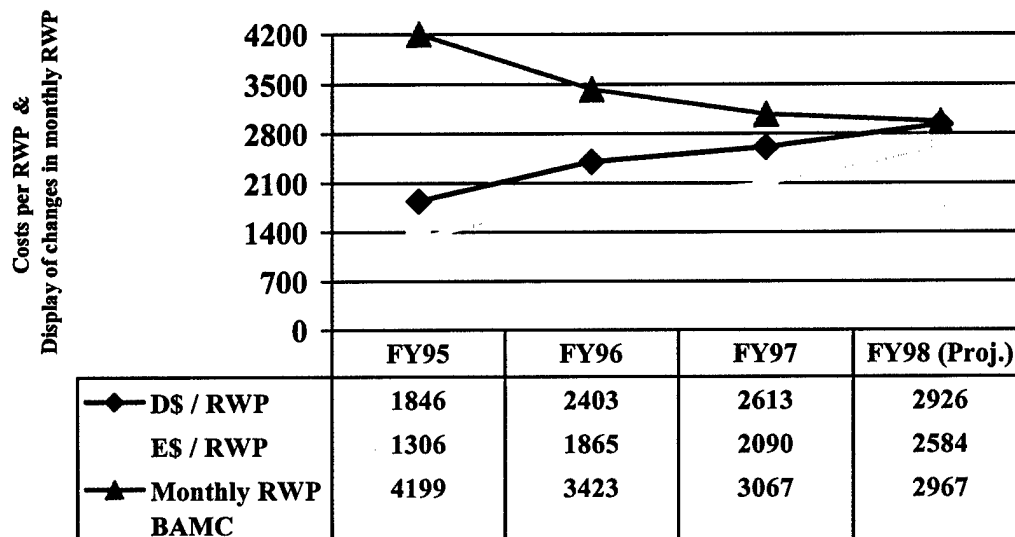
**Comparison in Dispositions
With Excess Bed Days per Quarter**



The seventh hypothesis involved changes in ancillary and administrative overhead. The two major sub-components of step-down costs for both MEPRS A and B Accounts are the ancillary (D) and administrative (E) overhead expenses. In order to attempt to identify the change in business practices, D- and E-Account expenditures were compared in relationship to the overall level of care rendered by the hospital in terms of the relative weighted products (RWP). This was calculated by using the Department of Defense (Health Affairs) overall ambulatory weighted units (AWU) for assessing the intensity of the outpatient care, not including Obstetrics or Radiation Therapy. The CMI data, for measuring the intensity of inpatient care, was obtained from the CEIS. Graph 12 shows the relationship between monthly D- and E-Account expenditures with monthly RWP over time. Depreciation expenditures from the E-Account have been removed to preclude confounding caused by the much more expensive physical plant that the BAMC staff moved into during FY 1996.

Graph 12

**Expenditures in the Ancillary and Administrative Areas per
Relative Weighted Product**



The eighth hypothesis was a brief review of administrative business process changes at BAMC and whether these new methods provided any savings. Data collection for this hypothesis proved extremely challenging.

According to UCAPERS data for the Materiel and Distribution sections of the Logistics Division, available FTEs declined from 95.7 in October 1993 to 64.4 in January 1998. However, this did not correlate with the large growth in operating expenses during the same period of time. Operating expenses taken from the MEPRS Part I, showed that costs had grown from 7.52 million in FY94 to a projected \$9.23 million in FY98.

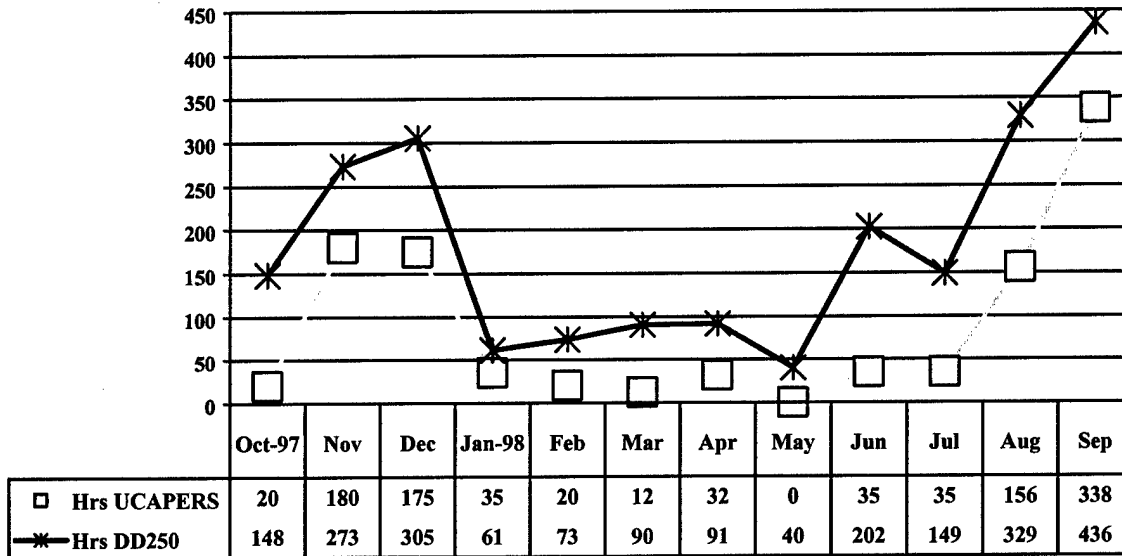
Over this same time frame, BAMC has undergone a logistics business process change. The use of prime vendor contracts has caused two major changes for the Logistics Division. First, the lines of supply being managed have dropped from 4,000 to around 1,000 according to BAMC resource management personnel. Second, the Logistics Division no longer manages pharmacy supplies. This means that roughly \$23 million of the overall \$45 million FY98 supply and equipment budget is no longer managed by the Logistics Division.

Finally, I conducted an analysis of the tracking of contract personnel by reviewing seven Department of Nursing sections (Trauma SICU, Standard SICU, Coronary Care Unit, Orthopedic Ward, Internal Medicine Clinic, Ambulatory Care Unit, and the Cardiac Monitoring Unit of the Emergency Room). Hourly (FTE * 168 hours) data found in the UCAPERS was compared with the raw hourly data of actual contractual payments from the applicable DD-250-1 Receiving Reports for those same work centers. Graph 13 is a display of the reported contract RN hours from the UCAPERS against the actual hours purchased by the Department of Nursing for the Trauma Surgical Intensive Care Unit

(TSICU) (see Table 9, Appendix 1). Graph 14 shows the Mean Absolute Percentage Error (MAPE) for the seven nursing units audited for FY 1998.

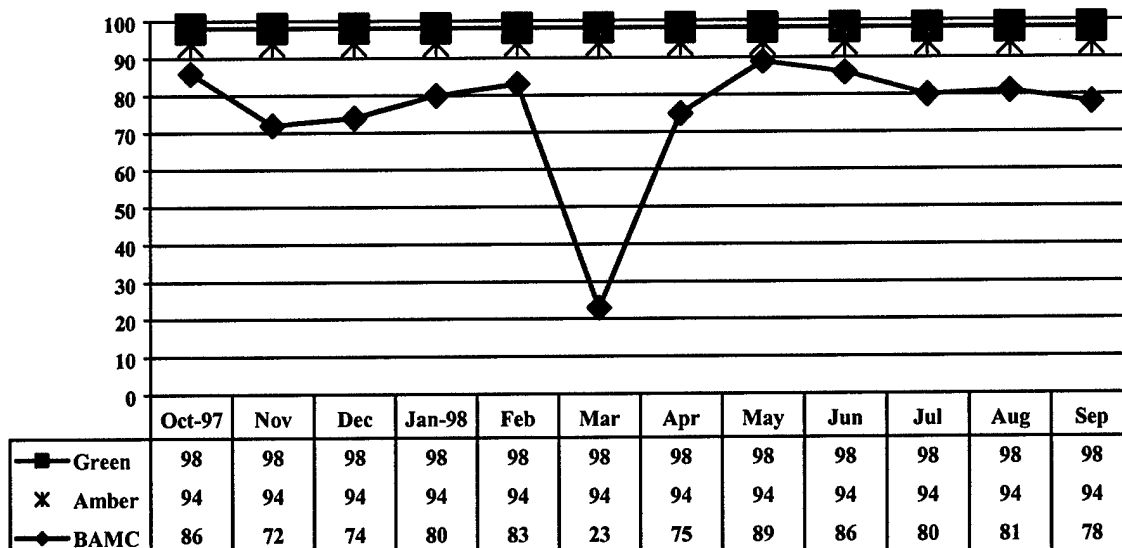
**Accountability of Contract RN:
Trauma SICU at BAMC**

Graph 13



Graph 14

**Accountability of Contract RN:
MAPE (Seven Sections)**



Discussion

The findings are important and relevant for BAMC. Clearly, the leadership at BAMC is committed to the challenge of creating a managed care organization. Many of the expected changes suggested by the literature are occurring within the hospital. Five inpatient wards have been closed during the period October 1996 through September 1998. Personnel have been moved from inpatient related activities into other activities, including a 48.8% growth in ambulatory services. The practice of utilization management to reduce unnecessary admissions and excess bed days appears to be working. The discussion section analysis will review the data in greater detail in the order of the hypotheses.

BAMC leaders have modified the resources for many internal activities in terms of dollars and people. The analysis suggests that the hospital is hiring additional personnel. The 32.9% increase in civilian personnel expenditures from FY96 through FY99 is well above the 11% expected because of normal inflation. This is supported by the information from showing the 321 FTE overall growth in total staffing from October 1993 through September 1998.

It is crucial to note that the money used to purchase additional civilian personnel has largely been financed through reductions in non-pharmaceutical supply/equipment and training/travel dollars. Reducing the funding for investment is in direct contravention with the literature. Additionally, reductions in capital improvements, automation, and training for personnel were all shown to lead to financial complications. How long can the civilian workforce be grown while investment in the equipment, physical plant, automation, and training for the workforce continue to be reduced?

The inpatient activities have been significantly reduced. The analysis suggests that BAMC has been shifting resources, in overall expenditures and FTE, from inpatient related activities toward ambulatory activities over the past several years. The overall MEPRS expenditures, which include military pay, have grown from an average of \$17.9 million per month in FY 1995 by 20.6%, to a projected \$21.6 million per month in FY 1998. Knowing that the O&M plus reimbursable expenditures have remained nearly constant, the growth in total expenditures must be due in part to inflation for military payroll, approximately 11% from FY 1995 through FY 1998. The remaining growth may be due to an increase in assigned military personnel.

Available FTE, as reported in UCAPERS, indicates that overall staffing at BAMC has increased from 3,092 in October 1993 to 3,413 in September 1998. Staffing of inpatient activities in the MEPRS A-Account fell from 444 FTE to 261 FTE during the same time frame. Staffing for ambulatory activities in the MEPRS B-Account grew in terms of FTE for physicians (+7.3%), direct care providers (+34.6%), and support staffing in the clinics (+32.6). This translates into an overall growth of 134.3 FTE in ambulatory activities.

It is interesting to note that the overall growth during this time period of 321 FTE, coupled with the reduction of 183 FTE from inpatient activities, and an increase of 134 FTE in ambulatory activities, leaves 370 FTE to account for. Staffing in the ancillary services fell from 828 FTE to 747 FTE (9.8%). Administrative services grew from 860 FTE in October 1993 by +3.1% to 887 FTE in September 1998.

The large growth at BAMC has occurred in the F-Account, non-capitated healthcare services such as GME and Army Nurse Corps (ANC) training programs. The account grew from 377 FTE in October 1993 by 82.7% to 689 FTE at the end of FY98. The

reason for this large growth in the F-Account was not part of the scope of this project. Additionally, BAMC does appear to show consistent growth in the G-Account for readiness related activities such as deployments for training (Joint Medical Readiness Training Center) or Army missions (Hungary / Bosnia). From October 1993 to September 1998, the G-Account grew from 75 to 186 FTE.

To conclude the discussion about the first hypothesis, the BAMC leadership identified the excess capacity that the literature suggests happens when hospitals undergo managed care. They closed five inpatient wards over the past 24 months and increased the staffing in ambulatory activities.

The second major question that was studied concerned the need, as suggested by numerous sources in the literature, for a growth in the information management activities. At first glance, significant growth in the E-Account MEPRS code of 'Administration' has taken place. In October of 1993, 38.6 FTE were available. The total FTE available in September 1998 had grown to 56.8 FTE. An interesting trend presented itself when the contract personnel were separated out from the civilian (GS) and military personnel in the information management MEPRS code, EBCA. While some growth has occurred in the non-contract personnel, 38.6 to 43.3 FTE, the majority of the growth has occurred in contract employees. According to resource management staff, the sudden appearance of 12.1 contract FTE in April 1998 do not necessarily represent new expenditures.

Accountability for contract personnel may be showing improvement. However, proper analysis is quite difficult. The total FTE in the E-Account did grow by 27 FTE, or 3.1%, from October 1993 to September 1998. Personnel in information management accounted for over 18 FTE of the total 27 FTE growth.

The literature does strongly indicate the need for additional resources in the information management area. The leadership at BAMC seem to have made a commitment toward investing in some personnel in this critical area of a managed care organization.

The third major question studied concerned the issue of excess inpatient staffing capacity and the Law of Bureaucratic Displacement. From October 1996, the period of the earliest available WMSN data, to September 1998, the overall average daily patient load (ADPL) or occupancy rate, has steadily fallen from 176 to 90. This represents a 48.8% reduction in the occupancy rate, or ADPL. Closely related is a 36.4% reduction in the cumulative average daily patient acuity.

This drop from 490.3 acuity points in October 1996 (2.786 per patient per day) to 311.6 acuity points in September 1998 (3.462 per patient per day) indicates a slight rise in the average acuity per patient per day. Measured over time, the overall acuity per patient per day rose with a slope of .011 over the 24-month time frame.

However, after accounting for months above or below two standard deviations ($sd = 0.1106$) from the mean ($x = 3.140$), the slope flattens considerably during the period, December 1996 through July 1998, to 0.004. This does not indicate that the remaining inpatients are sicker, as would be hypothesized from the literature on managed care. This stable acuity is further supported by data from the CEIS suggesting that the normalized CMI (no OB or new-born data) has not risen at all from FY 1995 through FY 1998.

During the same time frame, the overall number of Registered Nurses (RN), reported in the UCAPERS, have fallen from 415 to 393 FTE. This loss of 22 FTE represents a 5.3% reduction in overall RN, as reported in the UCAPERS (Table 8).

It is interesting that during this time period, which included five ward closures, a 48.8% reduction in ADPL, and essentially zero growth in the level of sickness per patient, changes resulted in a reduction of 184.5 to 137.2 FTE of RN assigned to inpatient wards within BAMC. This loss of 47.3 RN FTE, or 25.6%, represents potential savings (approximately \$2.3 million) for BAMC. When taken in the context of the overall loss of 22 FTE, the savings diminish quickly because over 25 FTE of RN were reassigned to other duty locations within the hospital.

Clearly, some RN were reassigned into Health Promotion and Community Health Nursing. The increase of 16 FTE in these two areas are in total FTE and not necessarily RN only.

Additionally, there was a substantial growth in the ambulatory (clinic) activities. This 32.6% growth in support staffing within the clinics was hypothesized to increase productivity within the clinics and provide greater access and quality to the supported beneficiaries. However, the results have shown that productivity (OPCV) per support staff has actually declined by 36.8%. The Pearson's r is a negative 0.655.

This is interesting from the standpoint of comparing previous literature on government or other non-competitive organizations with the AMEDD. Like the findings in the British hospitals (Gammon, 1993), the Department of Nursing at BAMC is demonstrating similar characteristics. Access, as defined by Outpatient clinic visits or inpatient dispositions, is declining. Data show that the remaining patients are not sicker. Yet, nursing administration grew from 45.3 FTE in October 1993 to 51.0 FTE in September 1998.

This only opens up the possibility for numerous other questions. First, what additional value have all of the RN and other nursing support personnel provided in the ambulatory clinics when the number of OPCV per support person have declined from 201 in FY 1994 to 127 in FY 1998? Clearly access to ambulatory care has not improved. Are these additional resources actually involved in direct patient care? Or are these additional nursing personnel filling newly created administrative roles?

Additionally, the audit of the DD-250-1's suggests that thousands of contract hours of contract nursing hours have been paid for, but not accounted for in the WMSN, the UCAPERS, or the MEPRS. This suggests that most of the claimed savings in costs for all of the inpatient ward closures may be fictitious because the contract personnel data reported into UCAPERS by nursing personnel is clearly under-reported.

The fourth hypothesis reviewed changes in the utilization management (UM) practices brought about by managed care. As reported in the previous section, the staff at BAMC has showed great improvement in completing SIDR for discharged patients. This has improved the reliability of the inpatient data between the MEPRS and the CEIS to 99.1%.

Over the past several years, the author has watched countless briefings where staff officers place MEPRS, RCMAS, or CEIS data into bar charts suggesting that the reductions in annual dispositions, allegedly caused by a good UM program, have saved millions of dollars. The facts do not seem to bear this out. When the data is separated out by patient home-of-record (catchment area), far more relevant information can be found.

BAMC has demonstrated a large reduction in patient admissions/discharges. But, how many of the total reduction in admissions/discharges can really be attributed to the UM

program? Using CEIS information, total dispositions at BAMC have declined from 12,675 in FY96 to 9,114 in FY98. However, 2,317 of that total reduction were from a 56.8% reduction in patients who came from outside of the city of San Antonio, Texas. Another 355 of the total reduction were the result of lower access to patients from Wilford Hall Medical Center's catchment area. This indicates that 2,672 of the total 3,561 reduction in dispositions at BAMC had little or nothing to do with a UM program. The dispositions from the BAMC catchment area dropped by 12.1% (7,345 in FY96 to 6,456 in FY98). The interesting fact about this reduction in local catchment area dispositions is that the CMI rose only from 1.40 in FY96 to 1.43 in FY98. This suggests that an overall reduction in access may be more responsible for the disposition changes than UM activities.

The fifth and sixth hypotheses are related and review the effect that managed care principles had on the movement of resources into the ambulatory settings and the levels of ambulatory access. The leadership at BAMC shifted resources into ambulatory care. Ambulatory access, as measured by OPCV, have demonstrated an overall reduction of 16% from October 1993 to September 1998. It must be noted that during BG Timboe's tenure, OPCV have shown some recovery.

However, while additional resources have been poured into the ambulatory clinic settings (7.3% growth in available physicians, 34.6% growth in available physician's assistants and nurse practitioners, and a 32.6% growth in clinic support personnel), OPCV have fallen. The average number of OPCV per provider fell from 338 in October 1993 to 244 in September 1998.

It cannot be stated strongly enough, that this is actually a high estimation of productivity because of the UCAPERS rules for the time accounting of physician residents. At least half of physician residents' time (and therefore FTE and salary) automatically shift away from the assigned work-center into the F-Account. It is estimated that if physician resident time were accounted into the proper work-center instead of the F-Account, that actual ambulatory productivity would fall below 120 OPCV per provider per month. The Pearson's r of negative 0.538 between the rise in providers and the decline in OPCV helps to quantify the relationship.

Research cited by Kongstvedt (1996) noted that different levels of productivity were related to the intensity of the care required, the healthcare setting, and gender. Internal Medicine providers in fee-for-service (FFS) settings were expected to see about 62 OPCV per week versus 109 OPCV per week for Family Practice providers. Additionally, providers in MCO's demonstrated productivity levels at about 83% of the FFS setting. Finally, female providers who are around 85% as productive as male providers (Kongstvedt, 1996), may also demonstrate significantly higher patient satisfaction scores.

If these data from civilian healthcare studies are combined to help define a proper AMEDD benchmark, the following levels of productivity are calculated. Internal Medicine providers in the AMEDD should be expected to see 175 OPCV per month (62 OPCV per week * 0.83 productivity for MCO's * 0.85 productivity for female providers who demonstrate higher levels of patient satisfaction * 4 weeks per month). Using this methodology, Family Practice providers should be expected to see around 308 OPCV per month and Pediatric providers approximately 281 OPCV per month.

The addition of over 103 nursing and support personnel does not appear to have increased access or productivity per provider. The Pearson's r of negative 0.655 between the rise available support personnel in the clinics and the decline in OPCV demonstrates this relationship.

The seventh hypothesis looked at the effect that managed care had on the ancillary and administrative services at BAMC. The hypothesis was that workload requirements on ancillary services would decline over time as inpatient workload was reduced. This was very hard to quantify accurately. Numerous confounding factors are present. Pharmacy supply expenditures have been rising far faster than inflation. Radiology shows great cost growth that is attributed to advancing technology or radiological data transmission equipment. The Department of Nursing has closed five inpatient wards, but greatly increased the staffing in the surgical suites, recovery room areas, and ambulatory surgical areas.

This amounted to a small overall growth in D-Account expenses over a four year period of time. When compared with an overall level of access, as measured by total RWP, the data suggests that no savings were harvested from the change away from inpatient-based acute care toward managed care. In fact, data indicate that D-Account expenditures per RWP grew 58.5% from FY 1995 to FY 1998.

The data also indicate that administrative expenses grew substantially larger during the four year time frame. While the literature discusses the importance of controlling the growth of overall staff (The Healthcare Forum, 1996) and administrative costs (Carnall, 1995 and Gammon, 1993), the administrative costs at BAMC grew from \$5.48 million in FY95 to a projected \$7.67 million in FY98. These administrative costs do not include

depreciation, which would have greatly skewed present day costs because of the new physical plant. When measured against RWP, the result is a 97.8% growth in administrative costs per RWP.

One of the other questions that I wished to explore was the long-held belief at BAMC that good UM was moving inpatient care into ambulatory settings. Part of this was believed to be taking place in the surgical arena. The results of the data analysis indicate that this may be true. During the 23 month period of time from October 1996 through August 1998, total cases performed in the BAMC operating rooms (OR) fell steadily. The mean number of cases per month was 662. The slope was a negative 0.11 cases per month. In August 1998, 615 total cases were performed. During the same time frame, ambulatory surgical cases (a sub-set of total OR cases) performed in the operating rooms rose from 281 up to 341. The slope was a positive 3.4 additional ambulatory surgeries per month.

While the total number of cases performed in the OR has been falling, staffing, as measured by data from the UCAPERS, has grown by 6.5 FTE in Central Material Supply/Central Sterile Supply (CMS/CSS) and 14.3 FTE in the Surgical Suite from October 1993 to January 1998.

The eighth hypothesis was a review of business process changes in the Logistics Division at BAMC and whether these new methods provided any savings. According to UCAPERS data for the Materiel and Distribution sections of the Logistics Division, available FTEs declined from 95.7 in October 1993 to 64.4 in January 1998. However, this did not seem consistent with the large growth in operating expenses during the same

period of time. Operating expenses taken from the MEPRS Part I, showed that costs had grown from 7.52 million in FY94 to a projected \$9.23 million in FY98.

BAMC is now using prime vendor contracts. As stated in the findings, this has caused two major changes for the Logistics Division. First, the lines of supply being managed have dropped by 70%. Second, pharmacy supplies are no longer managed by the Logistics Division. This means that around \$23 million of the \$45 million FY98 overall supply and equipment budget is no longer managed by the Logistics Division. The result is that the business change resulted in no true savings.

When Materiel/Distribution operating expenses are measured against managed supplies and equipment, the results are clearer. In FY94, it cost about \$0.19 of overhead per supply/equipment dollar handled. In FY98, the costs had grown to a remarkable \$0.40 of overhead per supply/equipment dollar handled.

Finally, I conducted an analysis of the tracking of contract personnel by reviewing seven Department of Nursing sections (Trauma SICU, Standard SICU, Coronary Care Unit, Orthopedic Ward, Internal Medicine Clinic, Ambulatory Care Unit, and the Cardiac Monitoring Unit of the Emergency Room). The results indicate that thousands of hours of contract nursing support is paid for but not reported into the WMSN, the UCAPERS, or the MEPRS. This translates into many FTE work-years that cannot be tracked in the MEPRS. The result is that the "savings" of 22 FTE of RN described in the findings is over-estimated because of the known under-reporting of contract personnel by the Department of Nursing.

Envisioning the Future

The opportunity to attend the U.S. Army-Baylor University Graduate Program in Healthcare Administration has provided me with a new set of tools to view the operation of peacetime military healthcare delivery. While many AMEDD officers are (or act) despondent about the future, great potential exists. Perhaps some are focusing on the process, and not the outcome. A better question may be, "what should we look like ten years from now?"

Graduate Medical Education (GME) has been a lynchpin for the AMEDD. Great debate has occurred over the need for GME and readiness applications. Often the debate is a tyranny of the "or" (either full GME or zero GME). This ridiculous portrayal is then studied. I wonder if the underlying question being asked and the assumptions used (resident productivity levels, staff productivity levels, and retention of moderately qualified staff physicians – defined as between 5-12 years of service) are flawed (see Vector Research, Quick Response Analysis of GME Costs, Volume 1, 31 May 95). GME has been previously linked to higher retention, attraction of high quality physicians, lower mortality rates in spite of greater CMI, and a host of other positive things.

Perhaps the better question to ask is which GME programs contribute to the AMEDD Strategic Plan and Surgeon General Vision Statement. Clearly, primary care supports all aspects of the Vision Statement. General, Thoracic, and Orthopedic Surgery all have direct battlefield applications. Some additional specialties such as OB/GYN, EENT, and Pediatrics may have utility in operation other than war and therefore meet most of the Vision Statement principles. However, one must question the role that GME programs in

Pathology, Psychiatry, and most of the Medicine sub-specialties have for any portion of the Vision Statement or the Strategic Plan.

Additionally, just as Gammon (1993) found in the government run British Healthcare System, the nursing bureaucracy consumes all potential savings as inpatient wards are closed. With the additional findings that ambulatory productivity actually dropped after increasing the clinical support staff in the clinics, one must question the roles of the nursing staff that have been moved into the ambulatory settings. This is compounded by the fact that the number of nurses available on the wards and in the clinics was under-reported because of the poor accountability for the growing nursing contracts. Coupled with the growing nursing administrative ranks, how much money is the AMEDD unnecessarily spending per year on contract and civil service nursing?

The argument has been raised that the lower productivity and the greater amount of support staff increased the quality of care. This is only supported by the theory surrounding the “iron triangle” of cost, quality, and access. There is no factual data available to support this claim.

Finally, the business process changes have not been confined to the fixed facilities. There is a significantly lower need for inpatient nurses on the battlefield because of the changing evacuation policies and the demand for a small and more mobile medical footprint. Likewise, just like in the fixed facilities, the need for a large logistics infrastructure on the battlefield has declined significantly with the advent of just-in-time management, Prime Vendor contracts, and the smaller medical footprint.

In the future, will the AMEDD be able to focus on the things that no one else can do – immediate casualty treatment, casualty evacuation, and battlefield surgery?

Conclusion

The AMEDD is operating in an environment that is becoming intensely competitive. Beneficiaries are better educated. They demand good healthcare and decent treatment. The civilian-run managed care support contracts (MCSC) are aggressively marketing the advantages of their healthcare benefits to healthy dependents and retirees. The leadership at BAMC face a myriad of difficult decisions on a daily basis.

This project was successful in providing relevant preparatory analysis for the 1998 BAMC Strategic Plan. Nine major research questions were reviewed. These questions were designed to give the leadership at BAMC a unique perspective on how their data look in relationship to the transition towards managed care.

BAMC has reduced the size of the inpatient infrastructure. Unfortunately, as was predicted by the literature, the savings never materialized. Instead, the resources simply moved into administration, education, or ambulatory settings. The result of the addition of over 130 FTE into the ambulatory infrastructure did not result in improved productivity (units per staff member per month) or access (OPCV fell by 16% over the five year period).

BAMC data indicates a small growth in the information management staff. However, a significant portion of the increase may be due to better accounting for contract personnel. The literature is quite repetitive in suggesting that investment in health management information systems is critical for success in the managed care world.

The myth that the large drops in dispositions are a result of good UM is false. While UM may play some role, the preponderance of the data suggest that access has been reduced to regional patients. Likewise, the drop in dispositions did not correlate with any

CMI growth. The more pressing issue may be to evaluate why the shift in the mission (regional patients are being cared for by civilian hospitals and significantly fewer are being transported to military medical centers) has not effected medical center staffing or funding. In fact, BAMC data show that overall staffing has grown by 321 FTE from October 1993 to September 1998.

In order to address these issues and the strategic future of BAMC, the medical center leadership will need to make some difficult choices. Just like Mintzberg (1994) suggested, these difficult choices commonly stymie further discussion of the strategic plan. Implementation will require a shifting of money and staffing away from several departments towards others who better positioned to carry out the healthcare needs of the beneficiaries in the future.

The AMEDD leadership will also be called upon to make several difficult decisions in the near future as funding continues to be constrained and pharmaceutical and medical equipment costs skyrocket. Do we need the current level of GME? Do we need the current number of medical centers? Do we need the current number of Regional Medical Command Headquarters? Are we truly a managed care organization...or better than that? How should the AMEDD best utilize its amazing resources to carry out the Surgeon General's vision?

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Appendix 1

Table 1 (Expenditures by category over time)

Category of Expense	FY96	FY97	FY98	FY99 (Proj.)
Civilian Pay	\$ 43.2 M	\$ 46.3 M	\$ 48.5 M	\$ 52.7 M
Per Svc Cont	\$ 9.6 M	\$ 9.1 M	\$ 12.9 M	\$ 14.1 M
CASU	\$ 0.1 M	\$ 2.4 M	\$ 3.5 M	\$ 3.5 M
SUBTOTAL Civilian Payroll	\$ 52.9 M	\$ 57.8 M	\$ 64.9 M	\$ 70.3 M
BASOPS/Other Must \$	\$ 28.0 M	\$ 27.7 M	\$ 26.6 M	\$ 26.3 M
Pharmacy Supply	\$ 20.0 M	\$ 22.5 M	\$ 23.5 M	\$ 26.1 M
Oth Supply/TDY	\$ 33.0 M	\$ 27.0 M	\$ 21.0 M	\$ 10.3 M
TOTAL O&M + Reimbursements	\$133.9 M	\$135.0 M	\$136.0 M	\$133 M

Source: Deputy Resource Manager & Budget Branch, BAMC – as of August 1998.

Table 2 (Changes in overall staffing at BAMC)

FTE by Category	Oct93	Oct96	Oct97	Dec97	Feb98	Apr98	Jun98	Aug98	Sep98	+/- Chg
BAMC Staff	3,092	3,418	3,401	3,167	3,033	3,386	3,376	3,257	3,413	+321
A-Account	444	360	257	254	246	245	260	263	261	(183)
Health Promo	0.0	3.8	5.0	3.7	5.6	6.6	7.7	9.2	12.6	+12.6
Comm Health Nurs	5.0	6.2	7.2	6.7	6.9	6.0	7.4	7.3	8.2	+3.2
Immunization	1.0	4.1	6.2	8.2	7.3	6.9	5.7	6.0	6.1	+5.1

Source: MEPRS

Appendix 1

Table 3 (Changes in overall staffing, E-Account staffing, and EBCA staffing)

FTE by Category	Oct93	Oct96	Oct97	Dec97	Feb98	Apr98	Jun98	Aug98	Sep98	+/- Chg
BAMC Staff	3,092	3,418	3,401	3,167	3,033	3,386	3,376	3,257	3,413	+321
E-Account	860	908	907	863	789	864	850	837	887	+ 27
"Administration"	38.6	44.9	41.0	46.1	38.4	43.4	44.0	43.4	43.4	+ 4.8
Military & Civ Svc										
"Administration"	0.0	0.0	0.0	0.0	0.0	12.1	13.6	13.0	13.4	+ 13.4
Contract Personnel										

Source: MEPRS

Table 4 (Changes in the Department of Nursing over time)

Month / Year	Total RN	EBD_ RN	Ward RN	Oper. Beds	ADPL	Cum. Acuity
Oct 1993	416.6	45.3			283	
Oct 1996	415.2	52.7	184.5	332	176	490.3
Dec 1996			172.2	273	149	452.3
Feb 1997			188.6	273	155	469.9
Apr 1997			180.9	273	130	402.5
Jun 1997			169.9	273	117	369.4
Aug 1997			167.9	244	125	412.1
Oct 1997	407.1	62.4	170.0	244	122	398.9
Dec 1997	356.9	62.7	141.8	215	110	358.2
Feb 1998	356.0	49.2	152.2	215	112	347.0
Apr 1998	382.5	53.3	131.6	205	107	322.1
Jun 1998	380.4	43.8	131.5	205	92	293.2
Aug 1998	356.3	43.0	137.8	205	96	317.7
Sep 1998	392.7	51.0	137.2	175	90	311.6

Pearson's r	1.000	0.269	0.771	0.710	0.559	0.710
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Source: MEPRS, WMSN, Pearson's r calculations against Total RN

Appendix 1

Table 5 (UM, Catchment area, and CMI changes over time)

UM Disposition	FY96	FY97	FY98	+/- Change
MEPRS Disp.	16,530	10,410	9,199	(44.3%)
MEPRS / 69,494	194.9	149.8	132.2	Disp/1,000
CEIS Tot Disp.	12,675	10,153	9,114	(28.1%)
CEIS BAMC	7345	6512	6456	(12.1%)
	CMI = 1.40	CMI = 1.47	CMI = 1.43	CMI = +2.1%
CEIS / 69,494	105.7	93.7	92.9	Disp/1,000
CEIS WHMC	1251	1074	896	(28.4%)
	CMI = 1.52	CMI = 1.47	CMI = 1.44	CMI = (5.3%)
CEIS Regional	4079	2567	1762	(56.8%)
	CMI = 1.74	CMI = 2.07	CMI = 2.30	CMI = +32.2%
Comparison	0.767	0.975	0.991	+ 29.2%
CEIS/MEPRS				"Improvement"

Source: Under 65 user population from RAPS; MEPRS Dispositions, CEIS

Appendix 1

Table 6 (Changes in OPCV, correlated with available physicians, PA's & NP's, Spt Staffing)

Month/Year	OPCV	(B) Available Physicians	(B) Available PA / NP	(B) Available Spt. Persons	OPCV / Provider	CV / Spt Persons
Oct 1993	63,918	127.3	62.1	318.1	338	201
Oct 1996	49,398	160.6	95.2	359.4	193	137
Oct 1997	56,005	137.3	88.2	391.1	248	143
Dec 1997	48,165	133.7	75.9	375.2	230	128
Feb 1998	52,559	120.6	76.7	364.7	266	144
Mar 1998	58,249	126.4	85.2	420.8	275	138
Apr 1998	57,368	130.5	89.4	417.7	261	137
May 1998	51,795	120.5	76.2	399.1	263	130
Jun 1998	52,898	122.1	79.4	408.6	263	129
Jul 1998	52,289	144.0	83.5	422.8	230	124
Aug 1998	51,485	133.5	82.1	405.9	239	127
Sep 1998	53,704	136.5	83.6	421.7	244	127
+/- % Chng	(16.0%)	+ 7.3%	+ 34.6%	+32.6%	(27.8%)	(36.8%)

Source: MEPRS, no OB OPCV, no Rad. Therapy CV.

Table 7 (Changes in quarterly dispositions beyond 2SD of HCFA LOS by MEDCEN)

Facility	1Q FY96	3Q FY96	1Q FY97	3Q FY97	1Q FY98	3Q FY98
BAMC	164	120	75	47	49	41
WHMC	156	117	96	78	97	62
MAMC	60	83	64	63	54	48

Source: RCMAS, minus psychiatric dispositions; Mr. Jim Jensen

Appendix 1

Table 8 (Ancillary & Admin expenditures in relationship to RWPs)

Category	FY95	FY96	FY97	FY98 (Proj.)
D-Account \$	\$ 7,753,562	\$ 8,224,604	\$ 8,012,712	\$ 8,682,615
E-Account \$	\$ 5,484,612	\$ 6,382,440	\$ 6,409,652	\$ 7,665,507
Average AWU	0.0321	0.0296	0.0328	0.0332
Monthly RWP	4,199	3,423	3,067	2,967
D \$ / RWP	\$ 1,846	\$ 2,403	\$ 2,613	\$ 2,926
E \$ / RWP	\$ 1,306	\$ 1,865	\$ 2,090	\$ 2,584

Source: MEPRS; FY98 expenses projected using first four months of data; CEIS

Appendix 1

Table 9 (Accountability between Contract hours reported into UCAPERS vs. Actual)

Unit	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOT
TSICU	20	180	175	35	20	12	32	0	35	35	156	338	1038
..DD250	148	273	305	61	73	90	91	40	202	149	329	436	2199
SICU	0	32	69	168	3	12	24	113	129	102	133	328	1112
..DD250	41	80	100	97	48	42	26	107	251	177	166	271	1406
CCU	94	126	134	148	71	99	64	136	144	852	949	524	3342
..DD250	96	152	187	180	127	108	91	170	350	1070	901	603	4036
Ortho	134	40	8	8	2	15	18	5	10	3	0	3	249
..DD250	128	218	142	16	0	42	5	32	24	64	86	0	758
IMC	546	479	554	504	454	521	529	479	512	512	504	529	6124
..DD250	520	472	494	448	440	520	520	480	616	688	795	792	6785
ACU	17	81	0	192	328	296	393	480	600	368	255	368	3377
..DD250	16	104	40	74	400	151	516	578	345	203	246	440	3113
CMU	NA	NA	NA	NA	NA	NA	119	617	721	617	617	464	3153
..DD250	NA	NA	NA	NA	NA	NA	321	643	723	782	722	729	3921
% Report vs. Actual	86%	72%	74%	120 %	117 %	179 %	75%	89%	86%	80%	81%	78%	88%

Source: FY98 MEPRS; FY98 DD-250-1 from Budget Branch, RMD, BAMC

Clinician FTE

Work Site	Oct-93	Apr-94	Oct-96	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98
A-Account	69.98	85.83	81.36	52.05	45.47	49.84	52.39	47.12	51.13	49.14	54.86	46.01	46.26	38.36	48.91
B-Account	127.32	128.83	160.59	137.34	111.70	133.71	130.38	120.63	126.37	130.48	120.45	122.09	143.97	133.45	136.50
D-Account	71.05	66.07	82.53	78.60	59.42	71.14	69.11	65.13	72.41	69.49	68.90	68.91	73.31	60.21	61.61
E-Account	78.89	63.25	77.82	86.14	72.09	75.57	80.30	77.67	86.02	83.91	71.57	68.06	72.84	75.29	92.61
...F-Account				387.22	322.91	335.23	340.14	335.53	371.48	365.21	334.64	343.46	325.21	345.59	363.30
...F-Account(minus Vet,HFPA)				0.24	0.00	0.24	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net F-Account	176.71	182.23	302.18	386.98	322.91	334.99	339.95	335.53	371.48	365.21	334.64	343.46	325.21	345.59	363.30
G-Account	12.31	4.50	23.30	24.07	22.32	19.02	20.14	22.39	26.17	35.22	18.23	31.00	15.53	28.22	22.53
Total FTE's	536.26	530.71	727.78	765.18	633.91	684.27	692.27	668.47	733.58	733.45	668.65	679.53	677.12	681.12	725.46
OP CV per month	63,918	59,674	49,398	56,005	44,129	48,165	53,392	52,559	58,249	57,368	51,795	52,898	52,289	51,485	53,704
...Minus OB, Rad Therapy, Discharge Planning	197.30	214.66	241.95	189.39	157.17	183.55	182.77	167.75	177.50	179.62	175.31	168.10	190.23	171.81	185.41
Clinical Physicians(A,B)	62.06	62.01	95.23	88.15	75.04	75.92	85.73	76.68	85.24	89.37	76.21	79.36	83.51	82.11	83.58
DirCarProv (PA,NP) (B)	259.36	276.67	337.16	277.54	232.21	259.47	268.50	244.43	282.74	268.99	251.52	247.46	273.74	253.82	268.99
Sub-Total Clinic Providers	246	216	147	202	190	186	199	215	222	213	206	214	191	203	200
Dispositions / Month (-OB)	1541	1541	940	848	779	786	813	751	875	761	792	716	715	688	675
Clinical Physicians(A,B,F)	189.02	186.73	325.48	411.05	345.23	354.01	360.09	357.92	397.65	400.43	352.87	374.46	340.74	373.81	385.83
Admin Physicians (E)	78.89	63.25	77.82	86.14	72.09	75.57	80.30	77.67	86.02	83.91	71.57	68.06	72.84	75.29	92.61
Admin DirCareProv (E,F)	46.59	40.38	60.89	76.07	59.75	65.75	65.40	64.15	70.83	67.99	64.40	68.85	64.24	58.83	66.07
Sub-Total Providers	125.45	103.63	138.71	162.71	131.84	141.32	145.70	141.82	156.85	151.90	135.97	136.91	137.08	134.12	158.68
.....OPCV / Admin Prov	509	576	356	345	335	341	366	371	371	378	381	386	381	384	338
.....Disp / Admin Physician	19.5	24.4	12.1	9.8	10.8	10.4	10.1	9.7	10.2	9.1	11.1	10.5	9.8	9.1	7.3
															632,039

Direct Care Providers FTE

Work Site	Oct-93	Apr-94	Oct-96	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98
A-Account	0.95	2.66	4.80	1.37	1.26	1.65	1.42	1.26	1.05	1.24	0.89	0.94	0.99	1.22	1.18
B-Account	62.06	62.01	95.23	88.15	75.04	75.92	85.73	76.68	85.24	89.37	76.21	79.36	83.51	82.11	83.58
D-Account	71.48	67.15	90.04	75.25	64.18	68.3	66.27	65.57	73.66	71.77	77.12	72.31	79.68	74.23	78.82
E-Account	18.62	16.09	22.15	27.60	23.79	26.56	26.11	25.11	27.28	26.49	22.13	23.49	26.24	24.99	24.68
...F-Account				62.12	49.26	54.59	52.94	49.37	55.32	51.34	51.62	55.61	48.51	46.11	54.02
...F-Account(minus Vet,RMC)				13.65	13.30	15.40	13.65	10.33	11.77	9.84	9.35	10.25	10.51	12.27	12.63
Net F-Account	27.97	24.29	38.74	48.47	35.96	39.19	39.29	39.04	43.55	41.50	42.27	45.36	38.00	33.84	41.39
G-Account	3.25	3.17	3.95	5.37	4.68	5.03	3.38	5.24	6.25	11.46	7.24	10.02	3.80	11.68	14.35
Total FTE's	184.33	175.37	254.91	246.21	204.91	216.65	222.2	212.9	237.03	241.83	225.86	231.48	232.22	228.07	244.00
DCP in Admin Role (E-F)	46.59	40.38	60.89	76.07	59.75	65.75	65.40	64.15	70.83	67.99	64.40	68.85	64.24	58.83	66.07

Registered Nurse FTE

Work Site	Oct-93	Apr-94	Oct-96	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98
A-Account	166.49	146.39	125.55	106.25	93.52	89.94	91.75	91.16	100.19	92.48	104.21	90.89	94.58	93.07	93.76
B-Account	31.69	30.22	48.18	46.85	42.34	45.51	46.82	43.98	51.83	48.1	48.58	51.23	53.84	48.00	53.08
D-Account	151.94	143.61	146.26	154.38	120.95	139.19	137.81	129.25	149.26	140.31	134.46	132.47	137.59	125.91	132.51
E-Account	46.43	47.95	46.73	51.12	39.39	45.73	47.00	42.00	45.59	40.90	41.20	37.91	41.30	40.70	46.15
...F-Account				37.09	32.80	35.27	41.03	39.22	39.89	34.62	37.37	42.70	37.46	26.17	32.57
...F-Account(minus Vet,RMC)				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.10	0.11	0.05
Net F-Account	9.83	11.40	36.88	37.09	32.80	35.27	41.03	39.22	39.89	34.62	37.24	42.70	37.36	26.06	32.52
G-Account	10.17	7.36	11.63	11.41	7.48	1.26	8.57	10.39	10.13	26.11	9.14	25.18	12.04	22.54	34.64
Total FTE's	416.55	386.93	415.23	407.10	336.48	356.90	372.98	356.00	396.89	362.52	374.83	380.38	376.71	356.28	392.66

RN Contract Work Site	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98
A-Account	0.55	0.27	0.55	0.04	0.06	0.71	0.25	0.28	0.47	0.14	0.00	0.62
B-Account	12.17	12.78	12.22	14.24	13.09	15.11	15.79	15.20	16.20	17.36	15.36	18.50
D-Account	14.18	13.46	15.34	14.56	11.96	14.02	13.66	13.56	14.11	16.15	15.72	15.31
E-Account	1.30	1.15	1.08	1.04	0.95	1.53	0.54	1.10	1.49	2.54	2.53	4.13
...F-Account	0.33	0.29	0.32	0.30	0.29	0.32	0.32	0.30	0.32	0.33	0.30	0.32
...F-Account(minus Vet,RMC)												
Net F-Account	0.33	0.29	0.32	0.30	0.29	0.32	0.32	0.30	0.32	0.33	0.30	0.32
G-Account	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total FTE's	28.53	27.95	29.51	30.18	26.35	31.69	30.56	30.44	32.59	36.52	33.91	38.88
DA-250 RN Contract FTE	24.37	22.55	22.62	21.92	21.41	23.34	26.50	24.54	23.87	35.06	25.00	23.00

PP Contract Work Site	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98
A-Account	13.44	13.45	10.83	9.05	8.47	9.26	8.71	9.14	9.35	9.18	9.26	8.88
B-Account	8.18	6.78	7.86	8.72	8.42	12.29	12.88	11.74	12.06	12.26	10.97	12.88
D-Account	16.56	13.39	16.33	19.97	23.01	32.71	31.11	33.07	37.21	36.13	35.46	35.64
E-Account	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
...F-Account	3.30	2.85	2.01	0.00	0.19	0.40	0.40	0.14	0.34	0.28	0.07	0.04
...F-Account(minus Vet,RMC)												
Net F-Account	3.30	2.85	2.01	0.00	0.19	0.40	0.40	0.14	0.34	0.28	0.07	0.04
G-Account	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total FTE's	41.48	36.47	37.03	37.74	40.09	54.66	53.10	54.09	58.96	57.85	55.76	57.44

ED and FCC

	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98
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BAMC98FTE

Registered Nurse FTE

...MEPRS Contract Avail	7.14	6.64	7.38	8.48	8.07	11.22	12.16	11.22	11.74	12.07	9.95	8.40
...DA250 Actual	1199.52	1115.52	1239.84	1424.64	1355.76	1884.96	2042.88	1884.96	1972.32	2027.76	1671.60	1411.20
...Personal Svc Contract	869.00	768.25	831.50	1108.25	972.75	1168.75	1421.00	1269.00	1285.25	1275.50	1252.00	1186.00
OR Subtotal DEAA/BA/DFBA												
...MEPRS Contract Avail	16.81	13.60	16.43	18.15	17.74	19.11	18.29	18.00	18.36	18.92	17.13	17.49
...DA250 Actual	2824.08	2284.80	2760.24	3049.20	2980.32	3210.48	3072.72	3024.00	3084.48	3178.56	2877.84	2938.32
...Personal Svc Contract	1510.25	1216.50	1118.50	1154.25	1112.75	1213.25	1189.75	1269.00	1199.00	1334.00	1244.00	1299.00
DGAA APU / 5S(Day)												
...MEPRS Contract Avail	2.00	0.86	2.10	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
...DA250 Actual	336.00	144.48	352.80	416.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
...Personal Svc Contract	334.25	351.50	319.50	394.50	339.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DGAE Endoscopy APU												
...MEPRS Contract Avail	0.71	0.86	0.71	0.90	0.95	1.05	1.00	1.00	1.05	1.10	1.00	1.05
...DA250 Actual	119.28	144.48	119.28	151.20	159.60	176.40	168.00	168.00	176.40	184.80	168.00	176.40
...Personal Svc Contract	168.00	105.00	120.00	155.50	156.50	218.00	318.00	192.00	170.00	190.50	168.00	162.00
DGEA/EB/ED Amb Nurs												
...MEPRS Contract Avail	0.10	0.48	0.00	1.14	1.95	1.76	2.34	2.86	3.57	2.19	1.52	2.19
...DA250 Actual	16.80	80.64	0.00	191.52	327.60	295.68	393.12	480.48	599.76	367.92	255.36	367.92
...Personal Svc Contract	15.75	104.00	40.00	74.25	61.00	150.75	516.25	577.75	344.75	202.75	246.25	440.25
@ 3N (MICU) DJAA												
...MEPRS Contract Avail	1.08	1.52	0.46	1.61	1.54	0.00	0.14	0.00	0.00	0.00	0.00	0.00
...DA250 Actual	181.44	255.36	77.28	270.48	258.72	0.00	23.52	0.00	0.00	0.00	0.00	0.00
...Personal Svc Contract	206.50	227.50	113.00	259.00	241.50	171.50	0.00	0.00	0.00	0.00	0.00	0.00
@ 2S (TSICU) DJBA												
...MEPRS Contract Avail	0.12	1.07	1.04	0.21	0.12	0.07	0.19	0.00	0.21	0.21	0.93	2.01
...DA250 Actual	20.16	179.76	174.72	35.28	20.16	11.76	31.92	0.00	35.28	35.28	156.24	337.68
...Personal Svc Contract	148.00	273.00	305.50	61.00	73.00	90.25	91.50	40.50	202.25	148.75	329.50	435.75
@ 2N (SICU) DJBB												
...MEPRS Contract Avail	0.00	0.19	0.41	1.00	0.02	0.07	0.14	0.67	0.77	0.61	0.79	1.95
...DA250 Actual	0.00	31.92	68.88	168.00	3.36	11.76	23.52	112.56	129.36	102.48	132.72	327.60
...Personal Svc Contract	41.25	80.25	99.75	96.75	48.00	42.50	26.00	107.00	250.75	176.75	165.75	271.00

.....Personal Svc Contract
.....@ 3S (CCU) DJCA
.....MEPRS Contract Avail
.....DA250 Actual
.....Personal Svc Contract
.....@ @EmerObUnit DGEE
.....MEPRS Contract Avail
.....DA250 Actual
.....Personal Svc Contract
.....@ 7W (Ortho)
.....MEPRS Contract Avail
.....DA250 Actual
.....Personal Svc Contract
.....@ IMC
.....MEPRS Contract Avail
.....DA250 Actual
.....Personal Svc Contract
.....@DFAA Anesthesia
.....MEPRS Contract Doc
.....MEPRS Contract DCP

BAMC98FTE

Registered Nurse FTE

BHFA Community Health	5.00	4.73	6.20	7.23	6.34	6.66	5.52	6.92	9.45	6.02	6.73	7.42	8.27	7.31	8.16
Clinic Visits	356	356	119	266	179	149	280	213	282	222	190	211	285	423	510
...	71.3	75.3	19.2	37.2	28.2	22.4	50.7	30.8	29.8	36.9	28.2	28.4	34.5	57.9	62.5
...BHAN Nurse Practitioner	0.00	0.00	8.12	8.10	5.47	6.88	7.30	6.32	6.49	5.77	3.61	4.67	5.34	5.70	5.81
BHAN Adult Primary Netwk	0.00	0.00	13.74	14.37	11.04	12.07	11.84	10.80	11.55	13.04	10.94	10.44	11.74	13.06	15.10
Clinic Visits	0	0	139	1458	1127	1233	1334	1144	1311	1233	1212	1306	1178	1109	1345
....OPCV / Nurse Practit	0	0	140.3	181.2	206.0	179.2	182.7	181.0	202.0	213.7	335.7	279.7	220.6	194.6	231.5
.....OPCV / Support Staff			203	234	202	238	294	255	259	170	165	226	184	151	145
EBDI Dept of Nursing	45.34	47.93	52.65	53.48	48.38	55.62	51.71	43.14	46.78	45.32	39.79	36.48	38.55	36.28	44.06
EBDM Amb Nursing Admin				4.67	3.23	4.65	4.81	3.65	4.21	4.44	4.41	4.10	3.91	3.73	3.90
EBDP ICU RN Admin				4.17	2.54	2.47	2.69	2.45	2.92	3.58	3.20	3.19	3.58	3.03	3.05
FBIA Immunizations				5.09	3.62	7.10	7.06	5.47	4.57	3.59	4.66	2.42	2.21	2.07	2.23
FBIE TMC Immunizations				1.10	0.95	1.08	1.29	1.87	3.08	3.29	3.56	3.23	3.74	3.91	3.90
EBEG ANC Courses	17.72	17.19	17.12	18.56	12.99	15.36	14.87	15.31	18.15	14.68	14.97	15.67	22.55	19.65	22.88
EBFB Phase II (91C) Staff	35.49	39.08	48.06	49.04	39.30	49.16	45.56	43.34	48.96	44.65	46.03	39.26	40.91	40.09	41.86
FAKG ANC Students	1.68	5.30	13.90	17.11	16.04	18.93	25.37	20.51	18.95	13.61	17.39	21.97	19.63	9.41	13.85
FAKF 91C Students	56.27	103.14	64.59	79.22	102.51	107.97	103.94	92.02	97.47	88.07	85.67	108.61	116.92	94.02	100.66
ANC Course Staff/ANC Stud	10.55	3.24	1.23	1.08	0.81	0.81	0.59	0.75	0.96	1.08	0.86	0.71	1.15	2.09	1.65
91C Staff/91C Student	0.63	0.38	0.74	0.62	0.38	0.46	0.44	0.47	0.50	0.51	0.54	0.36	0.35	0.43	0.42
Total DON Admin	45.34	47.93	52.65	62.32	54.15	62.74	59.21	49.24	53.91	53.34	47.40	43.77	46.04	43.04	51.01
Total Net OPCV	63.918	59.674	49.398	56.005	44.129	48.165	53.392	52.559	58.249	57.368	51.795	52.898	52.289	51.485	53.704
...OPCV / Nursing Admin	1403.7	1245.0	538.2	838.7	814.9	767.7	901.7	1067.4	1060.5	1078.5	1032.7	1308.5	1455.7	1186.2	1052.8

Para Professional FTE

Work Site	Oct-93	Apr-94	Oct-96	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98
A-Account	191.16	189.65	134.88	90.68	84.38	106.51	99.07	98.57	106.69	93.24	101.18	111.1	131.52	120.99	109.46
B-Account	201.52	189.30	201.12	219.45	187.64	207.17	212.06	212.11	241.07	243.29	234.97	231.32	245.57	240.84	245.30
D-Account	456.03	487.51	473.30	435.65	355.86	395.01	387.49	359.78	404.3	397.33	401.09	393.93	402.37	389.00	400.29
E-Account	88.65	88.70	94.77	104.05	84.53	101.68	92.16	81.16	95.38	91.73	87.13	89.35	90.70	80.28	91.33
...F-Account				155.29	155.36	176.82	178.03	163.49	169.58	166.44	163.09	188.07	199.97	168.14	177.60
...F-Account(minus Vet,RMC)				1.10	0.95	1.10	1.05	0.90	1.05	1.05	0.79	1.07	1.10	1.05	1.53
Net F-Account	103.30	158.23	117.93	154.19	154.41	175.72	176.98	162.59	168.53	165.39	162.30	187.00	198.87	167.09	176.07
G-Account	33.79	40.98	40.16	46.84	54.62	34.02	46.94	56.67	71.84	99.47	46.15	133.45	75.84	83.48	90.14
Total FTE's	1074.45	1154.37	1062.16	1050.86	921.44	1020.11	1014.7	970.88	1087.81	1090.45	1032.82	1146.15	1144.87	1081.68	1112.59

Administrative FTE

Work Site	Oct-93	Apr-94	Oct-96	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98
A-Account	15.64	14.72	13.40	6.44	5.33	6.21	6.23	8.3	9.07	9.33	9.81	11.14	11.52	9.34	8.12
B-Account	84.89	86.81	110.12	124.75	102.29	122.52	115.28	108.59	127.88	126.28	115.58	126.00	123.35	117.02	123.31
D-Account	77.74	74.46	88.27	82.24	68.04	74.23	73.47	70.15	79.27	79.1	73.92	74.53	73.64	72.96	74.04
E-Account	627.70	634.56	686.11	637.91	523.29	613.36	602.13	562.82	633.83	620.96	602.05	630.90	650.57	615.68	632.18
...F-Account				143.12	114.98	130.97	134.2	130.6	144.25	143.41	132.03	134.59	140.40	146.86	157.98
...F-Acc(minus Vet,RMC)				79.61	64.32	70.7	70.61	70.98	80.51	77.44	71.86	76.95	74.55	75.13	82.17
Net F-Account	64.59	64.81	66.25	63.51	50.66	60.27	63.59	59.62	63.74	65.97	60.17	57.64	65.85	71.73	75.81
G-Account	15.41	24.01	13.61	16.83	17.12	12.48	15.05	15.16	26.27	36.33	20.08	38.12	23.33	22.92	24.51
Total FTE's	885.97	899.37	957.76	931.68	766.73	889.07	875.75	824.64	940.06	937.97	881.61	938.33	948.26	909.65	937.97
EDCA Maint of Real Prop	5.50	5.50	5.50	5.50	4.75	5.50	5.25	3.80	4.20	4.20	4.00	4.77	5.50	5.00	0.00
EDAA Plant Mgmt	7.90	10.90	5.98	6.22	6.18	7.22	6.87	6.18	6.78	6.97	7.48	7.58	8.17	7.48	13.08
EEAA Materiel Svcs	75.03	77.90	65.65	64.42	51.07	53.78	59.62	63.70	72.73	72.15	67.35	73.76	75.49	77.46	77.72
EEAA Contract Pers	0.00	0.00	0.00	0.00	0.33	0.71	7.53	12.42	14.70	15.42	10.21	10.84	11.42	10.51	0.00
EEAB Distribution	19.67	17.00	12.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EGAA Biomed Repair	35.15	45.90	37.83	28.14	20.06	22.65	24.43	24.22	23.59	20.79	24.02	27.99	24.75	24.95	23.46
EHAA In-house Laundry	14.00	16.00	14.30	12.00	9.50	11.00	10.50	9.50	10.50	10.50	10.00	6.57	2.43	2.00	2.50
FACA Optical Fab	15.95	17.57	10.33	16.26	9.61	15.35	16.09	15.65	15.23	15.34	15.71	16.40	15.35	13.44	17.21
FAKD Biomed Sp Trng	5.30	5.43	9.59	8.80	7.67	7.23	6.65	6.39	5.36	5.51	4.58	5.11	4.06	3.52	5.11
EBHA Third Party Coll.	13.38	17.69	27.74	28.42	21.91	27.29	25.25	23.70	26.19	26.19	24.71	25.88	25.14	23.90	26.73
EJAA Inpatient (PAD)	80.7	78.74	86.29	77.69	65.11	76.26	71.77	65.16	74.46	73.27	73.17	74.40	74.35	70.03	71.11
EJAA OTH Personnel	0.00	0.00	0.00	5.87	5.41	5.26	5.37	4.97	6.18	5.97	5.53	5.51	5.53	5.57	5.51
EKAA Outpatient (PAD)	23.92	26.10	34.2	30.31	25.91	26.80	28.91	24.07	27.72	21.75	25.70	31.75	29.87	24.73	27.74
PAD Subtotal EJ/EK	104.62	104.84	120.49	108.00	91.02	103.06	100.68	89.23	102.18	95.02	98.87	106.15	104.22	94.76	98.85
EBCA Admin (IMD)	38.64	37.72	44.92	41.00	38.28	46.12	43.59	38.42	52.73	55.52	49.66	57.63	60.18	56.38	57.28
EBCA Contract Pers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.09	12.95	11.74	13.55	14.30	13.00	13.41

BAMC98FTE

Cumulative FTE

Work Site	Oct-93	Apr-94	Oct-96	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	
A-Account	444.22	439.25	359.99	256.79	229.96	254.15	250.86	246.41	268.13	245.43	270.95	260.08	284.87	262.98	261.43	(182.8)
B-Account	507.48	497.17	615.24	616.54	519.01	584.83	590.27	561.99	632.39	637.52	595.79	610.00	650.24	621.42	641.77	134.3
D-Account	828.24	838.80	880.40	826.12	668.45	747.87	734.15	689.88	778.9	758	755.49	742.15	766.59	722.31	747.27	(81.0)
E-Account	860.29	850.55	907.58	906.82	743.09	862.9	847.7	788.76	888.1	863.99	824.08	849.71	881.65	836.94	886.95	26.7
...F-Account				784.84	675.31	732.88	746.34	718.21	780.52	761.02	718.85	764.43	751.55	732.87	785.47	
...F-Acc(minus Vet,RMC)				94.60	78.57	87.44	85.50	82.21	93.33	88.33	82.13	88.27	86.26	88.56	96.38	
Net F-Account	376.53	440.96	561.98	690.24	596.74	645.44	660.84	636.00	687.19	672.69	636.72	676.16	665.29	644.31	689.09	312.6
G-Account	74.93	80.02	92.65	104.52	106.22	71.81	94.08	109.85	140.66	208.59	100.84	237.77	130.54	168.84	186.17	111.2
Total FTE's	3091.69	3146.75	3417.84	3401.03	2863.47	3167.00	3177.90	3032.89	3395.37	3386.22	3183.87	3375.87	3379.18	3256.80	3412.68	321.0

Ambulatory Calculations

Work Site	Oct-93	Apr-94	Oct-96	Oct-97	Nov-97	Dec-97	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98
B-Account	507.48	497.17	615.24	616.54	519.01	584.83	590.27	561.99	632.39	637.52	595.79	610.00	650.24	621.42	641.77
B-DCP	62.06	62.01	95.23	88.15	75.04	75.92	85.73	76.68	85.24	89.37	76.21	79.36	83.51	82.11	83.58
B-Clinician	127.32	128.83	160.59	137.34	111.70	133.71	130.38	120.63	126.37	130.48	120.45	122.09	143.97	133.45	136.50
Total Docs	536.26	530.71	727.78	765.18	633.91	684.27	692.27	668.47	733.58	733.45	668.65	679.53	677.12	681.12	725.46
%Doc Avail for Clinic	0.24	0.24	0.22	0.18	0.18	0.20	0.19	0.18	0.17	0.18	0.18	0.18	0.21	0.20	0.19
Spt Staff	318.10	306.33	359.42	391.05	332.27	375.20	374.16	364.68	420.78	417.67	399.13	408.55	422.76	405.86	421.69
OP CV	63,918	59,674	49,398	56005	44129	48165	53392	52559	58249	57368	51795	52898	52289	51485	53704
OPCV/Spt	201	195	137	143	133	128	143	144	138	137	130	129	124	127	127
OPCV/Prov	338	313	193	248	236	230	247	266	275	261	263	263	230	239	244

Cumulative Inpatient Wards

Source: WMSN

Cumulative Wards - BAMC

Date	Beds	Occ.Beds	CumAcuity	Assigned	WMSN Re Available	Avail/REQ	RN Assgn	RN Req	RN Avail	RN %	RN CE	HrMonth	CE Hrs	CE/OT RN
Oct-96	332	176	430.32	365	434.3	365.46	84.1%	203.8	184.53	90.5%	2.71	176	477	2.43
Nov-96	331	162	457.41	355	403.0	370.75	92.0%	191	188.9	101.1%	2.55	152	388	2.03
Dec-96	273	149	452.27	355	430.1	326.84	76.0%	195	205.6	83.8%	2.71	168	455	2.33
Jan-97	273	162	497.10	346	454.8	343.21	75.5%	191	217.5	83.0%	2.74	168	460	2.41
Feb-97	273	155	469.95	356	420.3	347.14	82.6%	195	196.1	96.2%	1.53	152	233	1.19
Mar-97	273	125	385.87	359	364.7	336.62	92.3%	197	172.6	107.0%	1.43	168	240	1.22
Apr-97	273	130	402.50	355	376.6	317.48	84.3%	209	181.4	99.7%	1.99	176	350	1.68
May-97	273	133	418.85	373	395.2	330.56	83.6%	237	188.2	101.0%	1.97	168	331	1.40
Jun-97	273	117	369.42	363	348.9	296.17	84.9%	231	165.2	102.9%	2.10	168	353	1.53
Jul-97	244	122	397.49	361	377.6	280.75	74.4%	219	180.7	89.1%	3.51	176	618	2.82
Aug-97	244	125	412.15	357	394.3	301.07	76.4%	210	190.2	88.3%	3.87	168	650	3.10
Sep-97	244	122	388.84	350	359.9	314.31	87.3%	208	172.5	102.6%	2.81	160	450	2.16
Oct-97	244	122	398.90	351	382.6	300.77	78.6%	209	184.9	91.9%	3.77	168	633	3.03
Nov-97	244	112	358.36	339	343.2	315.89	92.0%	197	164.4	105.7%	3.74	144	539	2.73
Dec-97	215	110	358.21	342	343.4	265.69	77.4%	197	167.1	84.9%	3.10	176	546	2.77
Jan-98	215	121	371.40	356	341.3	284.98	83.5%	207	160.9	95.1%	4.04	160	646	3.12
Feb-98	215	112	347.02	358	326.0	288.15	88.4%	207	157.3	96.7%	3.08	152	468	2.26
Mar-98	215	122	385.30	368	363.3	287.83	79.2%	208	176.9	87.4%	5.04	176	887	4.26
Apr-98	205	107	322.09	337	290.8	254.77	87.6%	186	137.8	95.5%	3.21	176	565	3.04
May-98	205	100	310.77	358	296.8	302.56	101.9%	201	140.9	110.2%	2.89	160	462	2.30
Jun-98	205	92	293.24	357	281.8	250.84	89.0%	198	133.9	98.2%	2.19	176	385	1.95
Jul-98	205	96	312.52	344	305.7	269.02	88.0%	189	144.2	95.2%	2.04	176	359	1.90
Aug-98	205	96	317.75	332	305.1	271.11	88.9%	181	146.1	94.3%	0.00	177	0	0.00
Sep-98	175	90	311.62	326	305.2	268.68	88.0%	179	149.5	91.8%	0.00	178	0	0.00